Telephony

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May 9, 1936

SPEECH TRAINING

By GLADYS CASNER

SIXTH ARTICLE OF A SERIES on voice technique designed to aid in the overcoming of operators' speech difficulties. Careless pronunciation and poor articulation and enunciation have no place in telephone work. Overcoming of provincialisms and dialectal speech peculiarities necessary for complete intelligibility. Speech faults commonly noted in the operating room. What is meant by "phonetics"

MISPRONUNCIATIONS are caused by malformations of the speech organs or they are the result of indifference, ignorance or carelessness. These suggestions are given for the improvement of your pronunciation:

1. Breathe correctly.
2. Study the compositon of words, making an attempt to visualize the movements necessary in making each individual speech sound.
3. Listen closely to those who articulate well.
4. Consult your dictionary often.
5. Practice the use of new and unfamiliar words.

In telephone work, operators and subscribers often have difficulty in making their voices carry over a built-up circuit; others have difficulty in being heard over a direct circuit. The reason for this is not always a lack of voice—it often is a lack of clear articulation and enunciation.

With proper knowledge of the formation of speech sounds, each operator should make an effort to pronounce each word correctly and distinctly. Then she will be heard perfectly unless her auditor has impaired hearing. Our aim should be to acquire a standard of speech utterance that will be intelligible to any customer in the United States as well as to any operator in this country.

Careless pronunciation, along with poor enunciation and articulation, arouses suspicion in the subscriber's mind as to the capability of the operator. Speech that will measure up to the four requirements of good telephone operating—speed, courtesy, accuracy and completion—must be free of pedantry, of dialects, vulgarisms, provincialisms and slang.

Whether Kalamazoo, Mich., is calling Little Rock, Ark., or a Texas operator is announcing a call to Portland, Me., it is essential that the operators be readily understood by each other. It was the idea of Alexander Graham Bell to establish an international language and it is being developed through the Modern Language Association and the Association of Teachers of Speech.

There is no such thing as perfection in pronunciation, but if we eliminate our provincialisms we create the basis for a mutual intelligibility.

There are three recognized dialects in the United States of America — eastern, northern and southern. The radio, travel, lectures, and the telephone have brought us to a realization that speech seemingly clear in one part of the country is not readily understood by a listener of another part.

Speech does not lend itself to strict measurement, as we compute weight in terms of ounces or pounds or distance in terms of feet or miles. There is no definite yardstick for determining the thing commonly called "correct speech."

A pronunciation is generally regarded as standard when it is used by a sufficient number of cultured speakers. It is, therefore, generally recommended by teachers and students of phonetics that the received or accepted pronunciations of educated and cultured people be adopted and that the use of provincial pronunciations be discouraged.

Webster's New International Dictionary does not presume to dictate what correct English pronunciation shall be. On the contrary, it records the best usage in pronunciation by cultured speakers of our country.

In consulting one's dictionary, if the American pronunciation is given with the British, I urge you to use the American. Travelers in England comment on the English telephone operators' good diction and voice. It would be just as easy for us, as American operators, to be careful of our pronunciation and build up the same reputation for good speech.

If you have been an operator for only a day, you will realize how difficult it is to work with indistinct, slip-shod prounciation and

articulation. To pronounce correctly, there must be the utterance in their proper order of all requisite sounds, with the proper placement of accent. Trying to acquire a good command of language through a loudly-advertised book or any "get-smart-quick" method of pronunciation brings about the same result in one's speech as taking patent medicines for chronic diseases affecting one's health.

I quote William Tilly of Columbia University:

"Others' knowledge stops where Alexander Melville Bell left off, though great advances have been made in the studies in which the Bells—father and son—were pioneers. We stand on Bell's shoulders; he is acknowledged as the founder of modern phonetics by the great linguistic scholars. But these scholars are so eminent and represent so many languages that they have tremendously advanced our knowledge during the last 40 years."

Phonetics does not attempt to teach what should be said, but what is being said. In 1880, representatives met in Berlin and evolved an international alphabet. The vowel sounds were given by Alexander Graham Bell. Phonetics is "the science of pronunciation which investigates the mode of speech sounds and their distribution in connected speech, the results of moving muscles."

Since the time of Aristotle, who tried to teach youths correct speech, there have been attempts made to develop a science of better speech. Brukke, in 1850, began the study of Sanskrit and was the first student of the vocal organs. He taught their importance in a university. From the time of 1898, when the first meeting of the National Phonetics Association was held, there has been a period of experimental phonetics.

The very simple fact that there are 26 letters in the Roman alphabet to represent 39 sounds explains the need for phonetic symbols. The Roman alphabet embraces a number of imperfections. The same letters have different sounds.

Phonetics gives the form accurately in writing. Phonetics has one sound for a symbol and one symbol for each sound. The real word has changed because our pronunciation has changed; the book word or written word remains the same and has been the cause of inconsistency and guesswork in pronunciation. In the past we have considered words made up of letters; in the future, we shall consider each word composed of speech sounds.

For pronunciation, consult Daniel Jones' English Pronouncing Dictionary or any good dictionary compiled in America. Each operator's restroom should have these dictionaries:

1. For pronounciation: Daniel Jones' English Pronouncing Dictionary.

2. For definition: Webster's New International Dictionary.

In the next instalment of this series examples of typical vowel sounds will be given with Webster's diacritical markings. Pronunciation should be careful and simple rather than careless, vulgar or affected.

Speech teachers disagree as to what should be done concerning affected speech. Alexander Wolcott, of "Town Crier" radio fame, recommends an incorrect pronunciation as better than a mincing pronunciation. It is my opinion that an affected pronunciation is better than no effort at good usage.

Pedantry in speech—such meticulousness in pronunciation as to be conspicuous—is as objectionable as carelessness. Do not acquire the

ANGER

By MISS ANNE BARNES

Traveling Chief Operator, Iowa Independent Telephone Association, Des Moines, Iowa

In the days of old women folks (why women folks *ONLY* I have often wondered) who were quick-tempered were called "scolds," "shrews," or "vixens." I have always thought of such folks as low and squatty in stature, or tall and angular, and with wisps of hair hanging loosely about their faces and necks.

Today, such folks are called "thin-skinned," "sensitive" or "peevish" and, strange to say, I do not think of them as short and squatty, or tall and angular. They look like anybody else.

Whatever the name given to quick-tempered folks—those who anger easily or anger under stress—a display of anger is offensive, inexcusable, and harmful to those concerned.

The word "anger" has a mean, raspy sound. Anger generates in the mind and, when it finds vent, it escapes from the lips like hot, hissing, unrestrained steam. Giving way to anger can get one into a lot of trouble whether it is justifiable or not. But is anger ever justifiable?

There is said to be such a thing as righteous indignation, but how can we make the offender know our indignation is righteous? "His conscience tells him so," someone remarks. True, he may have talked things over with his conscience, but when the injured one berates him angrily, he forgets he has a conscience for the time being.

Does he see his error through our angrily-flung words and make acknowledgment? No siree! not if he has any spirit.

Oftentimes one member of the operating force can make life more or less miserable for the others by her unrestrained anger and her quickness to take offense. Perhaps she carries a chip on her shoulder, taking offense oftentimes when it is not intended, reading unintended meanings into comments of the other operators.

It is well to remember that "a soft answer turneth away wrath and a grievous word stirreth up iniquity." If you would help someone to curb her temper, answer her with a "soft" word if an answer is necessary. Otherwise, take no notice of her emotional display. More than likely she will regret her outburst, so help her to forget it by taking little notice of it.

There is an old proverb to this effect: "To rule one's anger is well; to prevent it is still better." We have been taught to count ten before we speak if we are angry; but if we are very angry, to count a hundred. I am afraid many of us have not learned our lesson well.

Unrestrained anger is often more harmful to us than the injury that provoked it, because we also burn ourselves with the fire we kindle for the offender. Then we become angry with ourselves for losing our temper which makes us twice angry over one offense. What have we gained? What have we lost?

MORAL: Anger is as unsafe as throwing a stone at a rattlesnake.

mental attitude that your pronunciation is the only correct one, since several equally-correct ones may be given in your dictionary. There must be a happy medium in speech, as there is in any other phase of life.

Sloven pronunciation includes the mumbling of words and guessing at the pronunciation of a word. In the following will be found sounds omitted, added or transposed.

Examples in which sounds are omitted are given in the following paragraphs:

In giving reports on a call, especially if one has a tendency to speak rapidly, one may slip into the habit of not pronouncing her "L's":

K. kaw—call

Always use a clear "l" in telephone conversation; the majority of actors and elocutionists use the clear "l."

If one is dealing with an irritable subscriber or an unusually busy person, there is a tendency to talk so rapidly that she omits one or more requisite sounds of a word to "save" a few minutes that must be lost by repetition. Examples:

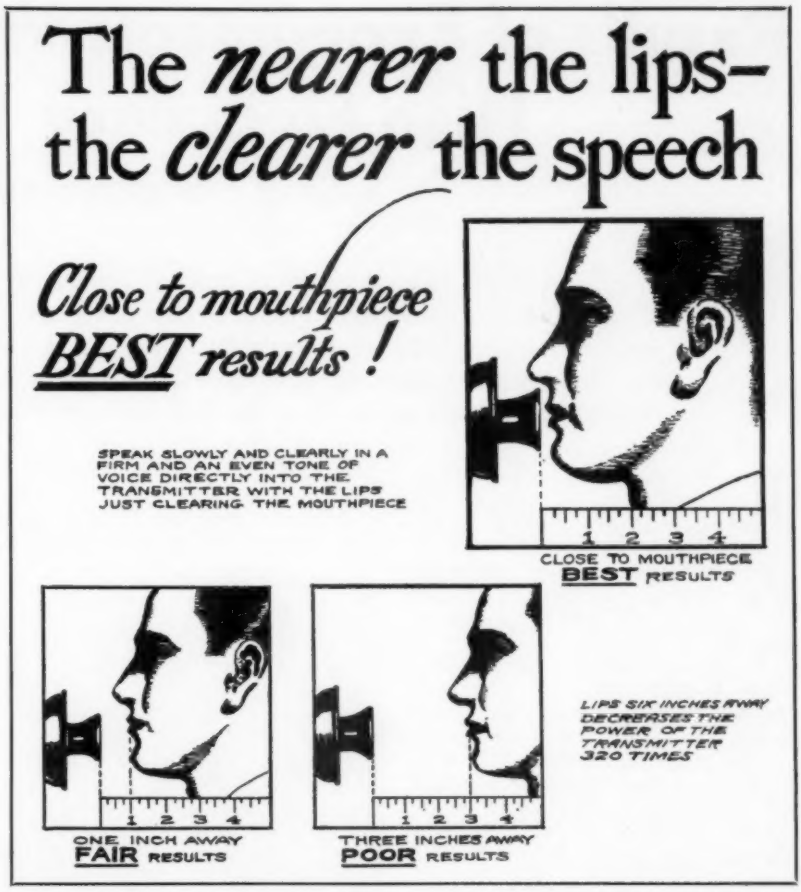
futher—further
long distant operator—long distance operator

Adding sounds in a word can mean only ignorance or incorrect observation, and the only solution is to consult a dictionary and fix in mind the correct pronunciation. Examples:

prevenitive—preventive
elum—elm
atheletic—athletic
grievious—grievous
idear—idea
Florerda—Florida

Transposition of letters or the substitution of an incorrect letter:

Calvary—Cavalry
Putman—Putnam
Perduce—produce
fur—for
Stanford—Stamford


The nearer the lips–
the clearer the speech
Close to mouthpiece
BEST results !
SPEAK SLOWLY AND CLEARLY IN A FIRM AND AN EVEN TONE OF VOICE DIRECTLY INTO THE TRANSMITTER WITH THE LIPS JUST CLEARING THE MOUTHPIECE
1 2 3 4
CLOSE TO MOUTHPIECE
BEST RESULTS
LIPS SIX INCHES AWAY DECREASES THE POWER OF THE TRANSMITTER 320 TIMES
1 2 3 4
ONE INCH AWAY
FAIR RESULTS
1 2 3 4
THREE INCHES AWAY
POOR RESULTS

This Illustration Showing the Correct and Incorrect Distance of the Lips With Respect to the Telephone Mouthpiece for Good Transmission Appeared in the Telephone Directory of the Churchill County Telephone & Telegraph System, Fallon, Nev., of Which D. H. Townsend Is Manager. Underneath the Cut Were Printed These Words in Large Capital Letters, "Time Limit. Limited Time for Using a Line Is Five Minutes!"

In the following words the vowels are often mispronounced: extra, Italian and suite.

Consonants in these words are frequently mispronounced: because, disaster and example.

A misplaced accent is common with the pronunciation of advertisement, ordinary, theater and reputable.

The silent letters in these words are often erroneously pronounced: almond, salmon, often, corps, toward and hasten.

And in Review

Do YOU Know?

1. Why a standard of speech utterance is so essential in telephone operating?

2. What are the three recognized dialects in the United States?

3. What are the most common errors caused by careless speech utterance?

4. What books should be placed in every operators' restroom as an aid in cultivating proper speech?

Another article in this series on "Speech Training" will be published in an early issue of "Telephony."

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North Dakota Convention Set for May 26 and 27

The North Dakota Telephone Association will hold its annual convention in the Powers Hotel, Fargo, on May 26 and 27, according to a recent announcement.

"Speech Training" Articles Benefit Reader

YOUR articles concerning certain features of the traffic department have interested me for some time. I not only enjoy the articles, but am greatly benefited through them. The articles on operating technique are helpful, but I derive more good from those on "Speech Training," by Gladys Casner.

I am an employe of the traffic department in a small town and realize, perhaps more than those in larger offices, how needful is "Speech Training." I am indebted to all the contributors on traffic problems, and especially to you and Miss Casner for the assistance I have gained through your magazine.

Sincerely yours,
IOLA MCCLELLAN
Stamford, Texas

Results of Experiments With High Frequency Wave Guides

By DR. G. C. SOUTHWORTH
Radio Research Department, Bell Telephone Laboratories, Inc.

EXPERIMENTS with an unusual form of electrical propagation by means of which waves of extremely high frequencies may be transmitted through specially-constructed wave guides. Description of some of the apparatus used and discussion of the nature of this unusual method of transmission. Published through courtesy of the Bell Laboratories Record

IN THE early days of electrical communication, it seemed axiomatic that there must be a completed circuit to permit the flow of electric current or power. A return path, either in the form of another wire or the earth, was apparently essential.

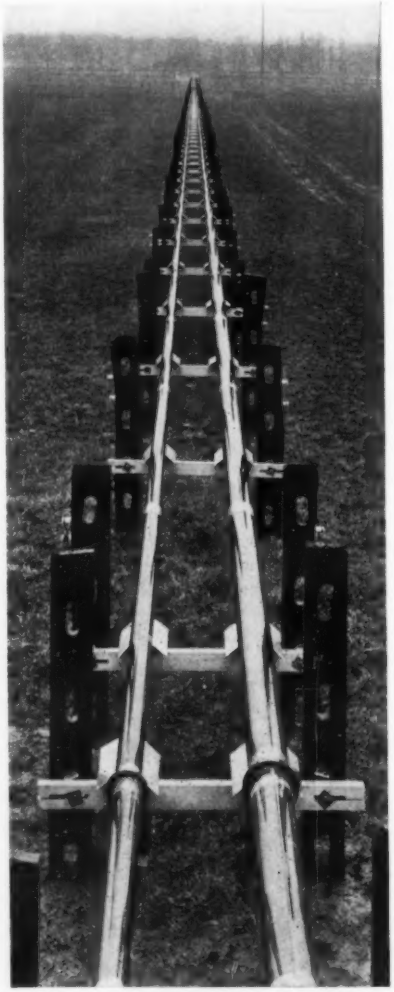
With the advent of radio this seemingly fundamental law was broken, because for radio transmission no return path in any ordinary sense is required. Radio, however, was very evidently a distinctly different type of transmission. The radio waves simply traveled in all directions through space as does light or radiant heat.

Researches in the Bell Telephone Laboratories have disclosed a new form of transmission for high frequencies. It is unlike radio because the waves are not broadcast through space but follow a physical guide comparable to a wire. No return path, however, is required of the kind that is commonly assumed in the usual case of transmission.

With an ordinary concentric conductor, such as is used for feeding a radio antenna, the outer tube forms one side of the circuit and the central conductor the other. If, however, instead of operating such a structure at a frequency of about a million cycles—approximately the average frequency for broadcasting—a frequency of 2,000 million cycles were employed, it would be found that the central conductor could then be completely withdrawn and still the structures would be able to transmit power.

It would be necessary, of course, to provide a suitable means for launching the waves, and the form of transmission would be radically different.

In this example the pipe would have had to be at least 4½ inches in diameter, but if the pipe had been filled with an insulating material having a dielectric constant of four, a 2¼-inch pipe could have been used, while if the dielectric constant had been nine, a 1⅛-inch pipe could have been used.



Two-Wave Guide Transmission Lines, One Four and the Other Six Inches in Diameter, Built for Experimental Purposes at the Holmdel (N. J.) Radio Station of the Bell Telephone Laboratories.

As a matter of fact, the outer pipe itself may also be done away with. The transmission will take place along a wire or rod of insulating material, and the attenuation will be least when the resistivity of the insulator guide is the greatest.

Incredible as these phenomena may seem at first sight, they are readily explicable on mathematical principles that have been known for many years. As early as 1897 Lord Rayleigh obtained solutions for certain differential equations occurring in electrical theory that indicated that wave power could be propagated through either hollow metal pipes or through dielectric rods. So far as is now known, no experimental work was attempted at that early date.

As often happens in science these principles were independently discovered by others. In particular, a group of workers in Germany studied this problem, and published several papers. They were Hondros and Debye in 1910, Zahn in 1916 and Schriever in 1920. Also our own J. R. Carson in 1924 and R. V. L. Hartley in 1931 gave thought to this problem.

Both Zahn and Schriever did a small amount of experimental work but it related mainly to the form of wave guide consisting of insulation alone, and dealt with just one of the many types of waves that may be propagated. The published literature indicates that their work was dropped at that point.

In 1931 the author resumed some experimental work on this subject, which he had started in 1920. This has now been expanded slightly and moved to the Holmdel Radio Laboratory where long wave guides may be constructed. Some details have been given in the April, 1936, issue of the Bell System Technical Journal.

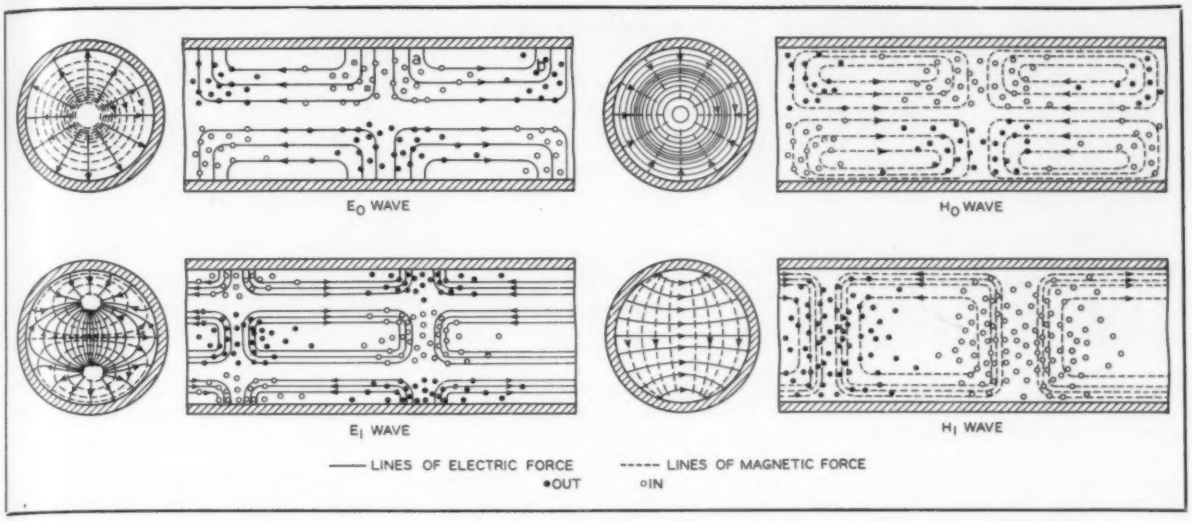


Fig. 1. Schematic Representation of Electric and Magnetic Fields for Four Types of Wave-Guide Transmission.

Throughout this experimental research there has been considerable work done by members of the mathematical groups, notably by J. R. Carson, Sally P. Mead, and S. A. Schelkunoff, who also have a paper in the Bell System Technical Journal for April.

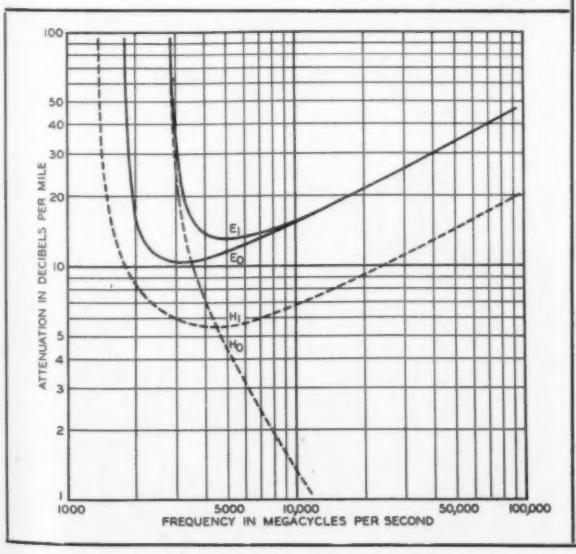
Sometimes experiment has suggested analysis. Sometimes analysis has suggested experiment. As in military operations so in experimental research, greatest progress is made when the efforts of line and staff are complementary.

The analytical work of Rayleigh and others has now been greatly amplified. The extensions which have been added to the theory include calculations of characteristic impedance, attenuation, and inductive effects into neighboring wave guides, and particularly the discovery that, theoretically at least, one of the many waves that may be transmitted through a hollow pipe becomes progressively less attenuated as its frequency is raised. This remarkable property appears altogether unique in the field of electrical transmission.

These electric waves that are guided through hollow pipes and dielectric rods are moving configurations of electric and magnetic fields. Mathematical theory indicates that in cylindrical guides these two fields may be associated in many different ways to provide a wide range of types of waves. Four of these are shown in Fig. 1.

They may be generated by any source of sufficiently high frequency, such as a Barkhausen or a magnetron oscillator. To set up any particular type of wave it is necessary, of course, to provide an appropriate launching mechanism. If the E_0 wave is desired, the source may be connected between the outside shell of the guide and a rather large central disk perpendicular to the principal axis. For H_1 waves the source is connected between diametrically opposite points on the inside of the pipe.

Wave guides behave somewhat like wire lines in that they have a definite characteristic impedance and a defi-



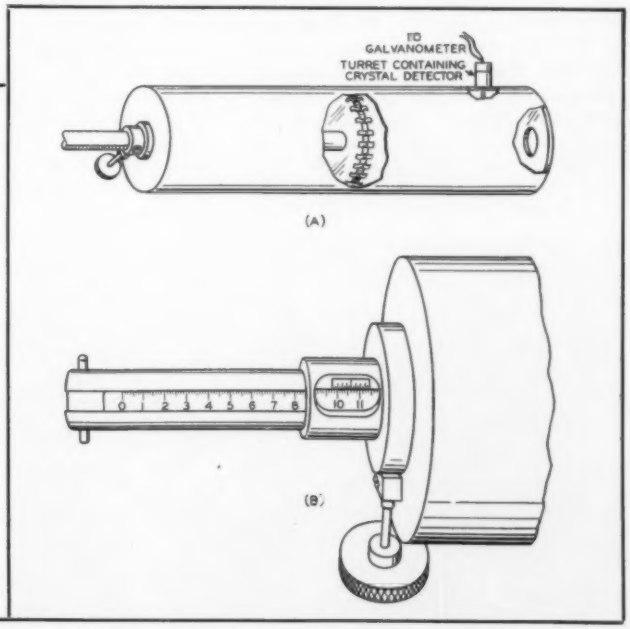


Fig. 2. Attenuation Characteristics for Four Types of Wave-Guide Transmission.—Fig. 3. One Form of Resonant Chamber Used in Connection With Wave-Guide Transmission.

G. C. Southworth Examining One of the Resonant Chambers Used for Tests of Wave-Guide Transmission; Behind Him May Be Seen the Two Experimental Lines. To the Right Is Shown Some of the Experimental Apparatus Employed for Wave-Guide Transmission.

nite attenuation. Also waves travel through them with a velocity that may be predicted with considerable accuracy. The calculated attenuations of the four principal waves are of particular interest. They are shown in Fig. 2 for the special case of a five-inch hollow copper pipe.

It will be noted that all waves suffer infinite attenuation at or below certain critical frequencies, and that with an increase in frequency this attenuation decreases very rapidly. For three of the types of waves it approaches a minimum, and then increases for higher frequencies. For the wave that has been designated as H_0 this attenuation appears to decrease indefinitely with increase of frequency.

Not all of the calculated characteristics of wave guides have yet been verified experimentally. In particular, no information is yet available on the very interesting H_0 wave except near cut-off.

At present, the author, together with A. E. Bowen, A. P. King, and J. F. Hargreaves, is working at the Holmdel Radio Laboratory measuring the attenuations. For this purpose two hollow copper pipes are used, which are four inches and six inches in diameter and 1250 feet long. These pipes are shown in one of the accompanying illustrations.

In much the same way that a pair of wires may resonate to waves traveling along their length, or an air column may resonate to certain sound waves, so may a short section of wave guide be made to resonate electrically to the frequencies which it is able to propagate.

In its role as a resonator it behaves as if it were a coil and condenser, sometimes in series with an electromotive force, and sometimes in parallel. These resonance effects are very pronounced and may be simply demonstrated by a cylindrical chamber such as that shown in Fig. 3.

The open end of a guide may be made to radiate wave power much the same as sound waves issue from a pipe. To enhance this effect the pipe may be expanded into a cone, thus producing an electrical horn. Tests show that it may function much the same as an acoustical horn, and accordingly may be used as an efficient radiating load for the generator to which it is connected.

The question naturally arises as to what use wave guides may be put. This is a difficult question at this early day. Wave guides have definite limitations. The diameter of the hollow pipe that may be used is directly proportional to the wavelength. For a pipe that is at all convenient in size, the frequencies are the highest that have yet been tried out for radio.

It is true that the diameter of pipe might be reduced if it could be filled with a suitable insulator. At this point we are met with a conflicting difficulty of producing at reasonable cost the necessary medium that will incorporate high dielectric constant with sufficiently low losses. It is true, too, that low attenuation could probably be had with much smaller pipes by the use of H_0 waves, but this calls for an even higher range of frequencies.

For a long distance transmission, the situation is that the art at these extreme frequencies is not yet at a point which permits a satisfactory evaluation of practical use. For transmission over very short distances, however, or for use as projectors of electric waves, or as selective elements under certain conditions the use of wave guides has definite possibilities.

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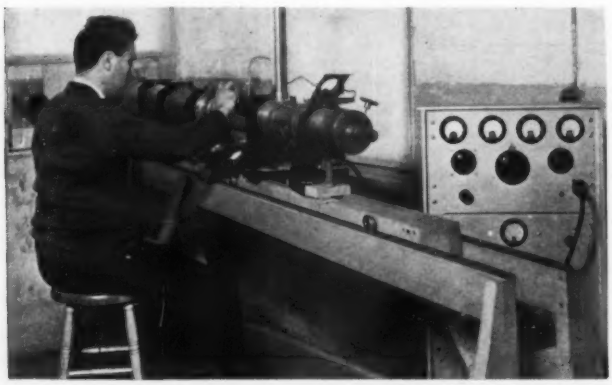
Illinois Convention Scheduled for September

Secretary-Treasurer A. J. Parsons, of Springfield, announces The Illinois Telephone Association will hold its annual convention in Peoria September 17-18.



A. P. King at the Sending End of the Experimental Wave-Guide at Holmdel, N. J.—To the Right Is Seen A. E. Bowen at the Receiving End of the Wave-Guide.

Telephone Toll Revenues

NEWSPAPER headlines have been shouting about the millions of profits made by the Bell System out of its long distance telephone business.

Evidence submitted by an investigator for the Federal Communications Commission at the hearings in Washington in the investigation of the Bell, was to the effect that the American Telephone & Telegraph Co. had net earnings of $400,000,000 from its long lines department between 1913 and 1935. The commission's mathematicians argued this represented an annual average return of 10.9 per cent on the capital invested in that toll business. They then declared that, setting 6 per cent as a standard return on the plant investment, the long distance revenue showed what they called "excess profit" of $180,000,000 in the 23-year period between 1913 and 1935.

These are big figures, and when they are coupled with the statement that the Bell has a monopoly of long distance service they seem even bigger—at least, to the Washington politicians.

They will look rather gigantic, also, to many Independent telephone men whose companies have formed the connecting link in originating or completing many of the toll messages that have contributed to the 400-million revenue. Likewise, the publication of these figures will remind many of the Independents of the compensation they have received for the part of the work they performed in handling toll traffic that passed over their wires.

LOCAL COMPANIES in many cases have not been satisfied with the toll contracts offered them by the Bell long lines department. They have known for a long time that the most profitable factor in telephone operations has been the toll business, and they have felt that they were not getting a fair share of the receipts.

In most cases, however, they have had to accept the Bell terms, not only because the Bell long lines were the only facilities available for long distance service, but because their own local telephone subscribers demanded an outlet for their toll business. An Independent company must supply toll as well as local telephone service. Bell subscribers, also, must be able to reach points served only by Independent companies, so both Bell and Independent companies have a mutual interest in maintaining a universal network.

In this connection, it is remembered that the Bell System has done some very effective advertising of the fact that every telephone subscriber in the United States can reach every other telephone subscriber by virtue of its wide-flung long distance connections.

It is an excellent point, and works advantageously for both sides. A Bell patron living in New York City desires to telephone a relative or a business associate in a small town in Iowa, and the New York Telephone Co. (Bell) must rely on the local (Independent) company in Iowa to complete the call. Or, a party in rural Iowa finds it necessary to telephone to New York, and, as in the other instance, both the local and the Bell long lines must cooperate to effect the exchange of messages.

BECAUSE of its efficient methods, the Bell System has increased its toll revenues prodigiously in the past ten years, but it still needs the local companies to reach many parts of the country to make good its justifiable boast that every telephone subscriber can reach every other telephone subscriber from Maine to California. There are approximately 20,000 exchanges in the country—and Independents operate some 12,000 of them.

As stated, many Independent companies feel they are inadequately paid for their share of the work in providing this toll service. In some of the larger towns, the local companies get a better contract than others, because there is more toll business, and also because they have been able to demand and obtain a more favorable division of the revenues by reason of individual conditions, including whether or not the local company operates the toll switchboard and also the haul on its own toll lines. Some companies are better fighters than others.

The ostensible purpose of this FCC investigation is to ascertain if rates should be adjusted "in the public interest." It has been the hope of the Independents that, when toll connections were investigated, some action would result to secure for them a larger share of the revenue.

THE QUESTION of toll compensation has been considered at various times and in various states, but little has been accomplished. Telephone associations have been urged to take organized action, but for some reason no definite action has resulted. Naturally, the Bell organization has not been aggressive in increasing the commissions of local connecting companies, as such increased compensation would come out of the Bell share.

The American Telephone & Telegraph Co. has put into effect several reductions in its toll charges. To be exact, there have been five separate cuts in long distance rates since 1926, aggregating nearly $18,000,000 saving to the telephone public.

It is only fair to point out that the Bell deserves credit for these reductions, as they were made voluntarily. At the same time it will be very gratifying to the Independent connecting companies if the FCC inquiry develops the fact that they can be allotted a higher rate of compensation for the service they perform in handling toll calls.

IN THE NATION'S CAPITAL

By FRANCIS X. WELCH,
Special Washington Correspondent for TELEPHONY

ALTHOUGH others may be more concerned about the broad hint given by the FCC to the effect that Bell long distance telephone rates will get a vigorous trimming as a result of the evidence so far produced by its special investigation, this correspondent feels that, for the Independent companies, the important event of last week happened on the other side of the Capitol building—in the new white marble palace of the United States Supreme Court.

It was not a telephone case that the court decided. It was not even a utility case in the commonly-accepted sense of that word. It was a case involving an appeal by the St. Joseph Stockyards Co. from a schedule of rates fixed by the Secretary of Agriculture under the Packers and Stockyards Act.

In exercising his rate-making powers under the Federal statute, the Secretary acts in the place of a regulatory commission and is, of course, subject to the principles of law which have been developed for utility regulation generally since the historic Smyth v. Ames case was decided in 1898.

It is not the particular facts, nor even the outcome of this stockyard case that is of so much importance to telephone utilities—the court was unanimous on that score. It was a difference which developed within the court as to whether it should even go into the matter.

Now, just to bring the significance of this point home to local telephone executives, consider the fact that adoption by the court of the minority opinion (Justices Brandeis, Stone and Cardozo) might well have had the effect of closing the Supreme Court to appeals in practically all utility rate cases, except those involving abstract questions of law as distinguished from the more voluminous questions of fact. This does not mean just stockyards under the Federal act. It means you and you and you.

UNDER this doctrine, findings of fact by your state commission would be just about final as far as the supreme tribunal is concerned. Only if the commission fell into an error of legal principle (such as the use of commodity index numbers by the Maryland commission in the Chesapeake & Potomac Telephone Co. case, decided last year, or the flat refusal of the commission to give recognition to an essential measure of value as has happened in a number of cases) would the U. S. Supreme Court look your case over.

This might easily mean the majority of rate cases, because the state commissions would not be slow to recognize the vastly-increased presumptive force given to their "findings of fact" and would "find" accordingly. Of course, arbitrary or capricious action of a commission in making findings entirely unsupported by evidence would still be subject to judicial correction for an issue of confiscation properly raised. But such cases are a rarity.

After all, the majority opinion by Chief Justice Hughes merely restates a principle of judicial review of quasi-legislative action, which has the precedent of many decades. It is this:

When a constitutional issue of "due process" is raised—whether it involves the liberty of an individual or the property of a corporation—the court refuses to be bound by findings of fact made by some regulatory board or official. Instead, the court will continue to exercise its own independent judgment in determining whether the evidence reasonably supports such findings.

The court, in this stockyards case, added that any attempt by Congress or anybody else (short of the people acting through a constitutional amendment) to restrict this judicial review would fall of its own weight. This, incidentally, should be a broad hint to those who would try to curtail the Supreme Court's powers by Federal statute. That is the law of the land today, and utilities are protected accordingly from confiscatory action.

THE concurring minority opinion even concedes that the majority opinion is the law as far as "precedent" is concerned, but suggests that it might be more desirable in the interest of bolstering up the effectiveness of regulation and avoiding these "old age" rate cases, for the court to strike out on a new course.

That would be to adopt a new constitutional doctrine whereby fact findings of regulatory agencies—presumably composed of experts having specialized knowledge—would be accepted by the court as final, just as they are in land condemnation cases and some types of tax and appraisal cases.

One angle, however, that should not be overlooked about this latest split in the U. S. Supreme Court is the fact Justice Roberts declined to endorse either view. This leaves open the possibility of a 5 to 4 line-up. Moreover, it suggests that the court's position on this point may shift with a new adjustment in the court's membership.

Under the court's ruling as it stands, it is doubtful if it would have any effect on the Johnson Act, enacted in 1934, whereby all utility rate cases are excluded from the lower Federal courts. That law merely determines the "forum" or proper court to take jurisdiction. The St. Joseph case determines the scope of appellate review once a court has taken jurisdiction.

Concluding this discussion of the stockyards case, it might be added that the court unanimously sustained findings of the Secretary which disregarded the element of land value arising from specialized industrial use and treated "going concern value" as "inextricably interwoven with other values"—in other words, not capable of separate appraisal. The Secretary's findings on income and depreciation were also sustained.

THURSDAY evening ("maid's night out") is an excellent time to see various government officials gathered in one place for dinner and informal conversation—a comparatively small hotel restaurant, called the Occidental, situated on Pennsylvania Avenue midway between the Treasury and the Department of Commerce. It is common to stroll in here during the dinner hour and see at least three members of the Cabinet (invariably including Secretary of Labor Perkins) seated at different tables, senators galore, and members of the House positively under your feet.

It was hither your correspondent trekked for dinner last Thursday and, by good fortune, met up with a good friend who used to be a U. S. Senator before the Roosevelt landslide swept him out of office. We were scarcely seated when we were agreeably joined by a couple of newspaper men and a

(*Concluded on page* 20)

Best

Monophones

Above: The Type 35A5 wall-mounting Monophone for automatic use. Below: The Type 34A3 self-contained desk Monophone for manual use, easily convertible for automatic operation by merely adding a dial.

(*Concluded from page* 16)

member of Congress who still happens to be of Democratic persuasion.

During the ensuing conversation the subject came up (guess who raised it?) about the FCC's chances for getting the requested $400,000 to continue the Bell investigation until next February (1937). Commissioner Walker had already indicated that at the prevailing rate of expenditure ($60,000 a month, roughly), the original $750,000 would give out about July 1, 1936, bringing the probe to an end about that time. This is slightly later than the surmise ventured by your correspondent several weeks ago that the investigation would run "the better part of the spring."

WELL, TO MAKE a long story short, the newspapermen both declared that the FCC wouldn't get a nickel—that too many members of Congress are fed up with it; that pounding away at the Bell companies is bad politics during an election year, and stockholders were already beginning to kick where it counts most—in the congressional mail box; and, finally, that the FCC would be lucky to get off without being investigated itself.

At this point the ex-senator put down his cigar and shook his head sadly.

"They will get all of it, or practically all of it, my learned young friends," he said. "I hear that the White House has given the word and —well, can't you see?—as a part of the Second Deficiency Appropriation Bill, Congress will be in such an all-fired hurry to get out of Washington for the national conventions that they won't stand for anybody, from either side of the aisle, picking the thing to pieces."

"And what do you—a Republican—know about word from the White House," queried one of the newshawks.

"You ought to know by this time," said the ex-senator, "that when I say 'White House' I don't necessarily mean President Roosevelt. It might be Mr. McIntyre, Mr. Early, or somebody else; but even as a Republican I hear things now and then, and I tell you the FCC will get the money."

"But what about Representative Connery of Massachusetts and Senator Couzens of Michigan? Won't they start a row?" he was asked.

"Both of these gentlemen have been taken care of—for the present," was the answer. (The ex-senator refused to elaborate on either "taken care of" or "for the present.")

Here the Democratic member intervened. He disagreed that the FCC would get all or most of the $400,000. He agreed, however, that a row in Congress would be avoided. His view was to the effect that the request would be cut down politely—without fuss or muss—in committee. He "guessed" that the final appropriation would be "in the neighborhood of $175,000."

This, he said, would enable the FCC to continue to investigate, with a reduced staff perhaps, or in an intermittent fashion until the next congressional session. But, he was sure that the investigation would *not* end July 1 or anywhere near that date.

And what does your correspondent think? Answer: Nothing. When one hangs around Washington long enough, one hears so many different stories that it simply raises the old shell game suggestion: "You pays yer money and you takes yer choice!"

ONE ANGLE of the FCC investigation that should have surprised no one, however, is the double-barrelled suggestion that Bell long distance rates will be cut in the future and that telephone rates generally have come down "since the FCC launched its investigation into the far-flung American Telephone & Telegraph Co."—to quote the Associated Press.

The bragging that so many different groups do about reducing utility rates is one of the most whimsical features of utility regulation—and the phoniest. Using the old hard-boiled scholastic method, "*reductio ad absurdum*," it is a mere schoolboy's task to demonstrate that if all the different claims for rate reductions were added together—which as a matter of ordinary common sense they could not be—the total reductions would far exceed even the amounts paid by customers in gross revenues for utility service.

Take, for a clearer example, the considerable reduction in electric rates. The Federal Trade Commission has "suggested" that numerous rate reductions occurred during and since its investigation into the electrical industry. The Federal Power Commission's electric rate survey, on the authority of Representative Rankin of Mississippi, has resulted in "untold" reductions in electric rates. Meanwhile, nearly every state commission reporting to its legislature generally boasts every year of electric rate reductions accomplished by its orders.

At the same time electric utility companies are proudly pointing to "voluntary reductions," while the government ownership groups are claiming that "yardstick" competition has beaten down the rates of the power trust. Elsewhere along the line it would not be difficult to dig up mayors, attorneys, and state officials who would not be bashful about assuming credit.

Total these claims, and it might even be possible to get a figure around 13 billion, which is the estimated *capital invested* in the entire industry.

Of course, to stick a pin into this bubble, it is necessary only to go to the U. S. Census figures which show that electric rates have been dropping constantly (with minor variations during the war and post war period) since 1900—long before the Federal Trade Commission investigation and before the Federal Power Commission, the state commissions, and most of the "yardsticks" were even born.

It is the same way, to a lesser degree, with telephone rates which have been generally coming down since 1931. Court litigation delayed a precipitate tumble through most of the depression, although telephone rates were nevertheless dropping steadily. Following the two notable telephone rate reverses in the United States Supreme Court, however, Bell telephone rates during the last two years have been drifting lower at an accelerated rate.

This would, of course, be true if there were no Bell investigation. The FCC is merely pointing to an incidental fact which may be a helpful argument in convincing Congress that it should have more money. However, whenever anybody starts to brag about his prowess as a rate-slasher, it is well to remember the ancient adage: "Let him boast who taketh off his armour."

▼ ▼

Night Operator Saves Two Men from Death

The alertness of Mabel Hillary, night telephone operator at Platteville, Wis., recently saved two young truck drivers from certain death. Miss Hillary heard a racing motor and, upon looking out of the window, noticed a large truck parked near an oil station with its motor running at top speed and two men slumped over in the cab.

Sensing something was wrong, she called the night policeman. When he came, he could not get the cab doors open. A passing motorist succeeded in stopping the motor by short-circuiting a coil. The door was forced open and the men, overcome by carbon monoxide gas, were taken unconscious to the hospital, where they were revived.

FCC Telephone Probe Considers Bell Pensions

EMPLOYES' PENSION plan of the Bell System the subject of inquiry, after consideration of operations and income of long lines department of A. T. & T. Co. Hearing then recessed to May 12

AFTER SESSIONS on two days last week the hearings in the investigation of the A. T. & T. Co. by the Telephone Division of the Federal Communications Commission recessed on April 29 to Tuesday, May 12. The testimony taken Tuesday, April 28, indicated that the A. T. & T. made large profits from its long distance business (TELEPHONY of May 2).

Samuel Becker, FCC special counsel, produced statistics based on the company's records indicating that the rate of profit on long distance calls since 1913 has averaged 62.5 per cent higher than the rate of profit on local calls. He also sought to show that the company's profits from long distance calls have been so high that their total over a period of five years equalled the company's total investment in long distance facilities.

Julius A. Krug, senior rate analyst and chief of the depreciation section, Wisconsin Public Service Commission, who is working under furlough on the FCC investigating staff as assistant to the chief accountant, John Bickley, was the only witness on April 28.

Long Lines Department Operates as Separate Concern

Although an indivisible part of the A. T. & T. Co., its "long lines" department functions like a separate operating company and, so considered, is the second largest operating company in the Bell System. It has joint ownership, Mr. Krug said, in 44,000 miles of pole lines. It owns, in addition, 16,800 miles of cable lines and, all told, controls 6,500,000 miles of wire, or enough to wrap around the world 270 times.

By the end of 1929 the "long lines" department had 26,593 employes, Mr. Krug said, but under an economy program adopted during the depression it has reduced its personnel by more than 50 per cent, so that at the end of 1935 it had only 10,787 employes.

While it was making that reduction in its total force of employes, Mr. Krug stated, its total operating revenues dropped only 11.7 per cent and the number of toll calls handled decreased only 5 per cent. On the other hand, its total investment in long distance facilities increased 90 per cent in the 1928-35 period, he added.

"The period including the years 1919-1925, inclusive," Mr. Krug said, "shows six years with returns exceeding 19 per cent on average net plant investment. During these particular years, the company recovered its entire net investment through net earnings at the rate of about once every five years."

Low Point of Long Distance Business in 1932

Its low point, he added, was reached in 1932 when its return was 4.11 per cent on net book cost. By 1935, this had risen to 6.72 per cent.

The largest revenue year of the "long lines" department was in 1930, Mr. Krug stated, explaining that its revenues that year totaled approximately $100,000,000. Seventy per cent came from telephone toll messages, he said; the rest from teletype, private lines and the leasing of wires to broadcasting companies.

At the hearing on Wednesday, April 29, the employes pension plan of the Bell System was the basis of a report by the commission's investigating staff, which was introduced by Mr. Huling.

Bell System Pension Plan Discussed by Witness

FCC Special Counsel Samuel Becker, sought to show that the cost of the pension plan maintained by "the world's largest private enterprise," comes entirely out of the pockets of telephone-users and that it is an expensive plan that yields high-salaried executives in the company pensions of $50,000 to $60,000 a year.

He endeavored to show that the plan is so devised that it favors the chief executives of the company, who get a much larger pension than do the telephone operators, linemen, clerks and other workers in the lower-wage brackets.

In this same connection Mr. Becker also sought to show that company employes have been denied pensions though they lacked only a few days of the 20 years' service required for eligibility; that the plan can be discontinued by the company at any time; that a large percentage of its employes leave its service without pensions; that men who go on strike against the company lose all pension credits; and that in some cases men approaching pension age have been given disability pensions which later were discontinued without service pensions being substituted for them.

Range of Pensions Shown

Service pensions in force at present under the A. T. & T. plan, Mr. Becker showed, range from a fixed minimum of $30 a month for regular employes who qualify and $14 a month for part-time employes who qualify to as high as $4,264 a month or $55,488 a year for a retired executive. He also showed that the average pension paid by the holding company is 3½ times larger than the average pension paid by the A. T. & T.'s operating subsidiaries.

Between 1913 and 1934, the report said, 6,005 persons were pensioned and $18,503,118 in benefits were paid out. This was an average monthly pension payment of $71. Of the total pensions 33 or 0.7 per cent of the total receive 8.5 per cent of the total pension payments, averaging $903 a month.

According to the report, of the 4,959 pensioners on the rolls, 33 averaged $903 a month between January 1, 1913, and December 31, 1934, 2,594 averaged $92 a month, 2,300 average $36 a month, and 32 part-time employes received less than $30 a month.

"Executives pensioned under the plan," said Harold Huling, a supervising accountant of the FCC staff who has been studying the pension system since last June, "are favored on account of long terms of service and steeper salary trends during their periods of employment.

"There is no maximum pension provision in the plan. The absence of such a provision . . . operates to extend the greater benefits to the employe with the longer term of service and the larger salary increases. "These features of the plan favor the executive."

Mr Huling added, however, that full-time employes whose salaries are not high enough to qualify them for a $30 monthly pension receive a minimum benefit of that amount.

As of January 1, 1935, the report stated, 13 executives of the Bell System were qualified for pensions, but were serving as active workers. If

pensioned, it added, all would have received monthly benefits in excess of $1,000.

No Maximum Pension Fixed in the Plan

It was brought out by Mr. Becker that, although there is a fixed minimum pension under the plan, there is no maximum limitation. He also brought out that, under the plan, the company's officials and employes make no contributions to the pension fund, the cost of maintaining which is charged up to operating expense rather than to surplus and thus goes into the rate bases which determine what the telephone user must pay for service.

The pensions paid under the company's non-contributory and non-limited pension system were contrasted with those paid under various statutory pensions systems.

Mr. Becker cited the Federal Government's Retirement Act, which limits pensions in the civil service to $720 a year with the employe paying part of the cost. He also cited the contributory pension plan set up in the Railroad Retirement Act, limiting pensions for railroad employes to $1,440 a year with the employes bearing part of the cost. Finally, he called attention to the contributory pension plan in effect in the diplomatic and consular service, a plan under which the maximum pension obtainable is $5,400 a year.

If the A. T. & T. plan fixed a maximum limit of $5,000 a year on pensions, it would save the Bell System and its subscribers $410,000 a year, according to documents produced from the A. T. & T.'s files. Those same documents, prepared by company officials, said that if the maximum were set at $3,600 a year, the amount the company must set aside each year for its pension fund would be reduced by $580,000.

The documents were produced by Mr. Becker to show that the company's management on more than one occasion had considered, but rejected, the idea of limiting the amount of pension any one person could receive.

FCC Accountant Testifies on Study of Pension Plan

When called to the witness stand, Mr. Huling testified that he had been employed by the Western Electric Co. from 1924 to 1926 as an accountant. He further identified himself as a former "G-Man," having been employed in the Justice Department's Bureau of Investigation from 1926 to 1935 and having had charge at various times of its accounting work in the Pacific Coast zone, the Southwest States zone and the Chicago district.

At the outset of his testimony Mr. Huling said the A. T. & T.'s pensions subject "is one of prime importance to telephone subscribers" as well as to past, present and future employes of the corporation and its subsidiaries.

He cited cases to show that employes "must have a full 20 years" of service in order to qualify for pension. In one case a man lacked ten days of 20 years and another 13 days; both were voted pensions by the employes' benefit committee of the Illinois Bell Telephone Co. only to have their pensions rescinded on orders from the A. T. & T. a year later because the men had not worked a full 20 years. Special pensions that "may be discontinued at any time" then were granted the men, Mr. Huling said.

Mr. Huling offered charts from the A. T. & T.'s records to show that the salary or wage of the rank and file employe rises during his first ten years with the company and then levels off, or, in some cases, declines, whereas the salaries of executives continue to increase throughout their service. He also showed that the executives have longer terms of service than the managerial and supervising employes and that the latter group have longer terms of service than the rank and file.

"Executives and supervisors," the report said, "on the average have longer terms of service to their credit than do other employes. The turnover of rank and file employes is so rapid as to exclude great numbers from the benefits of service pensions under the plan."

Eight major A. T. & T. executives who were on the payroll when the pension system was inaugurated now are drawing pensions ranging from $529 to $4,624 a month, Mr. Huling said.

Further to contrast the effect of the calculation method on the various classes of employes, Mr. Huling showed that the provision allowing the calculation to be based on the employe's ten highest-paid years resulted, for persons of 20 years' service, in an 11.3 per cent increase in the pensions of plant employes and a 23.3 per cent increase in the pensions of non-plant employes. In the cast of persons with 30 years' service, the increase for plant employes remained at the 11 per cent level, but for non-plant employes it jumped to 32.7 per cent.

Mr. Huling also contrasted the cases of an executive and a caretaker. The first had been with the company 37 years and five months. The executive's average monthly salary for all his years with the company was $599.10. The caretaker's was $104. The executive's pension was $435.56 a month, or 73 per cent of his average monthly salary. The caretaker's pension was $67.45 a month, or 65 per cent of his average monthly salary.

COMING CONVENTIONS

The Alabama Independent Telephone Association, Jefferson Davis Hotel, Montgomery, May 11 and 12.

Kansas Telephone Association, Hotel Sunflower, Abilene, May 12 and 13.

Florida Telephone Association, Floridan Hotel, Tallahassee, May 14 and 15.

New York State Telephone Association, Onondaga Hotel, Syracuse, May 20 and 21.

Tennessee Independent Telephone Association, Hermitage Hotel, Nashville, May 22 and 23.

North Dakota Telephone Association, Powers Hotel, Fargo, May 26 and 27.

Missouri Telephone Association, Hotel Muehlebach, Kansas City, May 27 and 28.

Pennsylvania State Telephone & Traffic Association Penn-Harris Hotel, Harrisburg, June 11, 12, and 13.

The Illinois Telephone Association, Pere Marquette Hotel, Peoria, September 17 and 18.

Conventions in the South Scheduled for This Month

Three southern conventions have been scheduled to be held this month, according to information received from the United States Independent Telephone Association, with the annual convention of the Alabama Independent Telephone Association taking the lead. The dates selected are May 11 and 12 and the meeting will be held at the Jefferson Davis Hotel in Montgomery, Ala.

Upon the heels of the Alabama convention comes that of the Florida Telephone Association on May 14 and 15 at the Floridan Hotel in Tallahassee.

The following week the Tennessee Independent Telephone Association will hold its annual convention at the Hermitage Hotel in Nashville.

Interesting programs are being worked out for these conventions. Miss Anne Barnes, of Des Moines, Iowa, will be sent by the national association to attend each southern meeting and to conduct traffic conferences.

Among the topics to be discussed at the general convention sessions are: "Rural Electrification and Its Effect on the Telephone Companies," "Taxes," "Operation and Management," "Public Relations," "What the Future Holds for Business," "The Public Service Commission's Viewpoint," etc.

Some Personal Items From the Field

ERNEST IRWIN, of Long Beach, Calif., secretary of the California Independent Telephone Association, a short time ago was suddenly afflicted with serious eye trouble and an operation was necessary to save the sight of his right eye. His many friends in the telephone field are sorry to learn of his illness and it is hoped he will soon be able to resume his activities. The convention of the association has been postponed until he recovers.

W. O. PENNELL, chief engineer of the Southwestern Bell Telephone Co. for the past 18 years, has announced his voluntary retirement from his official duties, effective May 1, after 38 years of continuous service in the telephone field. Mr. Pennell is 61 years of age.

After being graduated from the Massachusetts Institute of Technology, Mr. Pennell taught mathematics and electrical engineering at Lafayette College, Easton, Pa. In 1898 he became affiliated with the Bell Telephone Co. of Pennsylvania as assistant engineer. After supervising telephone construction work in northern Kansas for several years, Mr. Pennell became chief engineer of the old Missouri & Kansas Telephone Co. in 1903, with headquarters in Kansas City, Mo.

When that company was taken over by the Southwestern Bell Telephone Co., in 1912, he was transferred to St. Louis as general building and equipment engineer. Six years later he was promoted to the office of chief engineer, which he has filled for the past 18 years.

In scientific circles Mr. Pennell is well known as the inventor of several widely-used telephone devices and as author of various papers on engineering subjects and mathematics. He is past president of the St. Louis Electrical Board of Trade and the St. Louis Engineers Club. He also holds fellowships in the A. I. E. E. and other scientific organizations.

A. B. CHASE, secretary, treasurer and director of the Tri-County Telephone Co., South Haven, Mich., has retired from active participation in telephone work, excepting as a member of the Tri-County board. He is succeeded as secretary and treasurer by F. H. White, who has been auditor of the company.

Mr. Chase has spent nearly a third of a century in telephone work and has been secretary and treasurer of the Tri-County company since its organization in 1927. He held, successively, the positions of chief clerk, auditor, secretary, treasurer, general manager and vice-president of the predecessor of the Tri-County, the Van Buren County Telephone Co., formerly known as the Kibbie Telephone Co. He enjoys the distinction of having lost from work only one full day because of illness during his long service.

He is a member of the Independent Pioneer Telephone Association of the United States, national councilor of the South Haven Chamber of Commerce, vice-president of the South Haven city and township library board, director of the Van Buren Savings & Loan Association, secretary and a director of the South Haven Terminal Co., and a member of the Grange.

Mr. Chase is a 32nd degree Mason and a member of the Kiwanis Club. A graduate of Michigan State College, he is a life member of the Michigan State College Association. He is a member of the Knights of Pythias and a trustee of the Michigan Council of Religious Education.

F. H. WHITE, Newly-Appointed Secretary-Treasurer of the Tri-County Telephone Co., South Haven, Mich., and A. B. CHASE (to the Right), Who Has Just Retired.

F. H. WHITE, who succeeds Mr. Chase, has been engaged in telephone work for a period of 14 years. He was in the employ of the Citizens Telephone Co., at Grand Rapids, prior to the consolidation of its properties with those of the Michigan Bell Telephone Co. in 1922 and 1923. He then became auditor of the Dowagiac Telephone Co. and went with the Tri-County company as auditor when the Dowagiac interests were merged into its organization.

C. E. BEEM succeeded Mr. White as auditor of the Tri-County Telephone Co. Mr. Beem has been the company's chief accountant since 1930. Previous to that time, he was with the Michigan Associated Telephone Co., at Coldwater for three years.

BLANCH F. HORTON has just completed 31 years' service at the Granville, Ohio, exchange of the Newark Telephone Co. During this period she has for almost 20 years been the "hello girl" in that exchange, having become the only attendant September 18, 1916, when the dial automatic system was installed in the village exchange which now has 785 patrons.

In addition to her connection with the Newark Telephone Co., Miss Horton has served the village of Granville as its treasurer for 14 years and has begun a new term. For 17 years she has been the secretary of the local chapter of the Daughters of Union Veterans. She has also served six years as secretary, two years as treasurer and two years as trustee of the Cup of Cold Water circle of the King's Daughters and Sons.

MARK T. CASTER, of Lincoln, Neb., plant superintendent of the Lincoln Telephone & Telegraph Co., has been named as the 1936 president of the newly-organized Lincoln Safety Council. Mr. Caster has been engaged and interested in the work for a number of years, and did most of the preliminary work of organization.

HOWARD ELLEDGE, formerly of the plant department of the Southeast Public Service Co., at Elkin, N. C., is now local manager at Mt. Airy, N. C.

JULIAN PRICE, formerly manager of the Romney, W. Va., group of the Southeast Public Service Corp., is now in charge of the South Boston, Va., group.

J. B. BLOMBERG, of St. Louis, Mo., transmission engineer for the eastern Missouri and Arkansas area of the Southwestern Bell Telephone Co., has attracted much attention, in foreign countries as well as in the United States, by his work in the mitigation of electrolysis in long underground toll cables. His studies of the causes of electrolysis and his contributions in designing and applying mitigative measures, during the past 35 years, have gained for him a reputation of preeminence in this particular phase of transmission work.

In TELEPHONY of December 16, 1933, was published an article by Mr. Blomberg on the subject, "Electrolysis on Long Toll Cables," which has attracted much interest among transmission engineers throughout the world. The subject was later discussed in the Proceedings of the American Institute of Electrical Engineers by Mr. Blomberg.

The basis of his unique plan of applying counter electromotive force for the mitigation of electrolysis conditions on the long length of underground cable between St. Louis and Kansas City, as described in this article, has been the subject of communication between Mr. Blomberg and engineers of the State Electricity Commission of Victoria, Australia, as well as correspondents of Mel-

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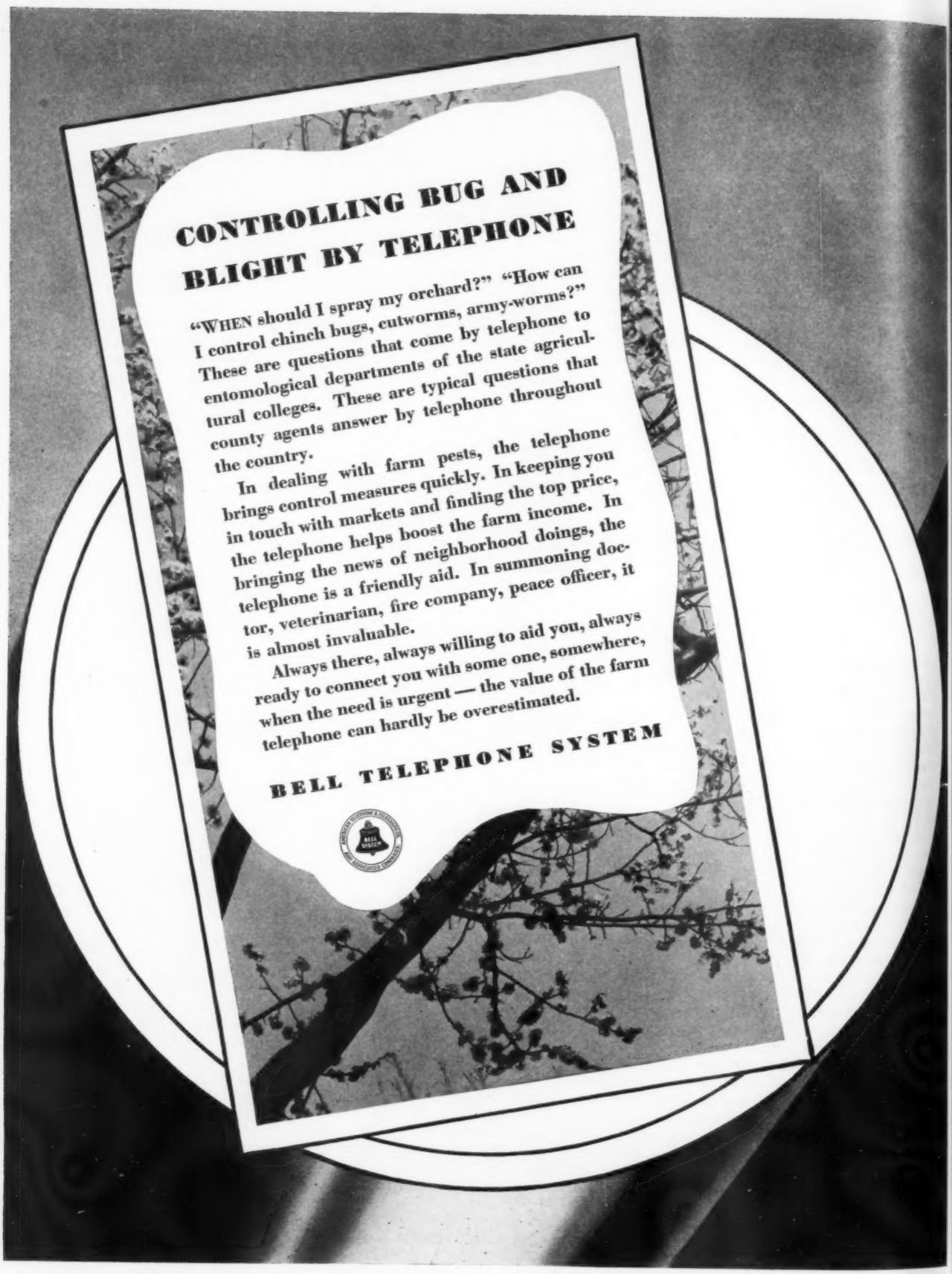
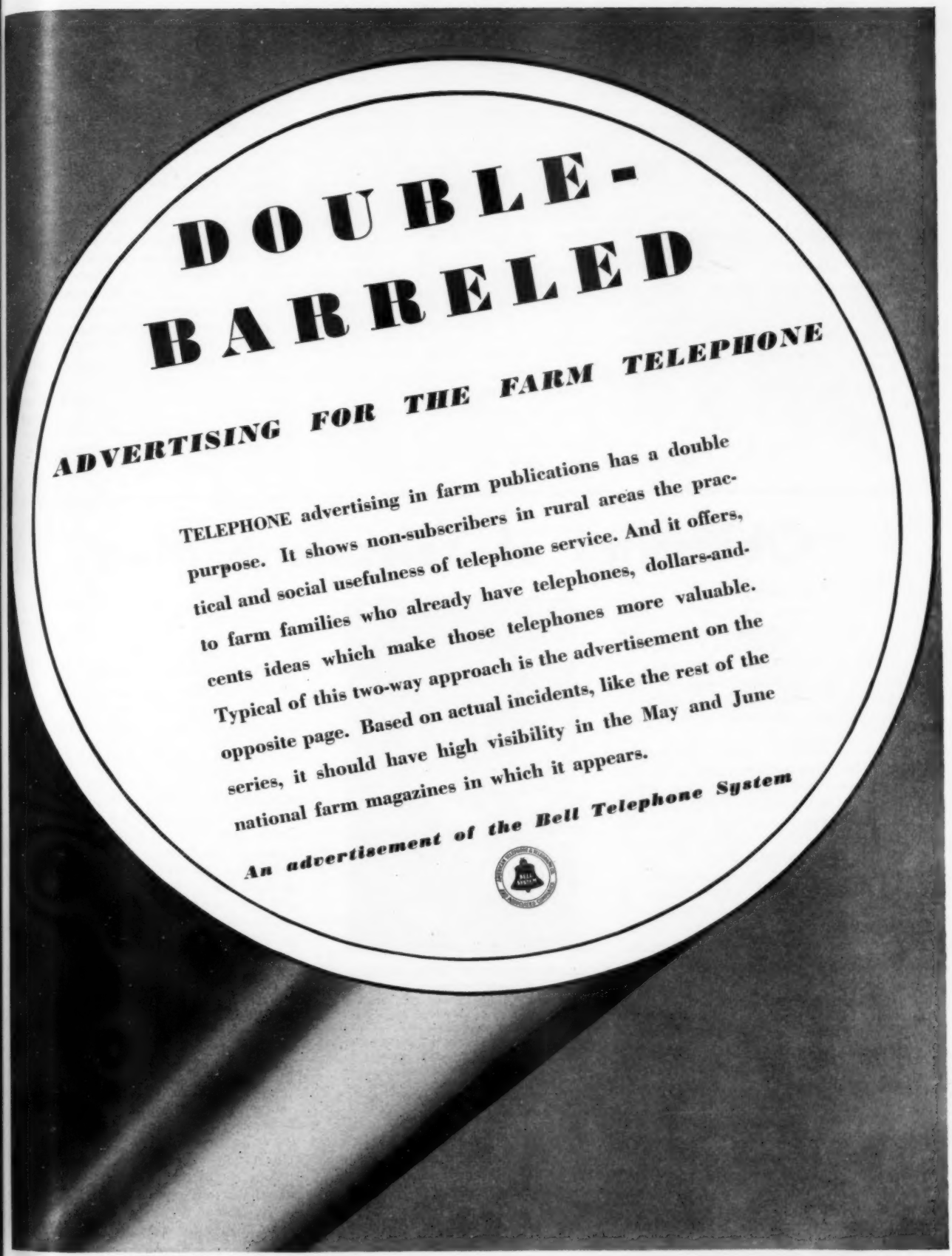

CONTROLLING BUG AND BLIGHT BY TELEPHONE
"WHEN should I spray my orchard?" "How can I control chinch bugs, cutworms, army-worms?" These are questions that come by telephone to entomological departments of the state agricultural colleges. These are typical questions that county agents answer by telephone throughout the country.
In dealing with farm pests, the telephone brings control measures quickly. In keeping you in touch with markets and finding the top price, the telephone helps boost the farm income. In bringing the news of neighborhood doings, the telephone is a friendly aid. In summoning doctor, veterinarian, fire company, peace officer, it is almost invaluable.
Always there, always willing to aid you, always ready to connect you with some one, somewhere, when the need is urgent — the value of the farm telephone can hardly be overestimated.
BELL TELEPHONE SYSTEM


DOUBLE-BARRELED
ADVERTISING FOR THE FARM TELEPHONE
TELEPHONE advertising in farm publications has a double purpose. It shows non-subscribers in rural areas the practical and social usefulness of telephone service. And it offers, to farm families who already have telephones, dollars-and-cents ideas which make those telephones more valuable. Typical of this two-way approach is the advertisement on the opposite page. Based on actual incidents, like the rest of the series, it should have high visibility in the May and June national farm magazines in which it appears.
An advertisement of the Bell Telephone System

(*Concluded from page* 23)

bourne, Australia, London, England, and other points.

Mr. Blomberg's first experience in dealing with electrolysis problems was secured under the direction of the late Dr. S. P. Grace, of the Bell Telephone Laboratories.

W. B. STEPHENSON, general plant extension engineer for the Southwestern Bell Telephone Co., in St. Louis, Mo., has been appointed engineer for the Oklahoma area, to succeed C. W. Mier, who has been transferred to Texas. He has been with the company 27 years.

Entering the employ of the Southwestern Bell as student engineer in St. Louis, in 1913, Mr. Stephenson was transferred to the traffic department the following year, where he was for a time engaged in engineering work. In 1917 he became division traffic supervisor in Kansas City. Two years later he returned to St. Louis as equipment studies engineer and in 1921 was made general fundamental plan engineer. In 1930 his title was changed to general plant extension engineer.

C. W. MIER, Oklahoma engineer for the Southwestern Bell Telephone Co., has been appointed engineer for Texas, succeeding B. D. Hull, who becomes chief engineer of the company. Mr. Mier first joined the ranks of the Bell System 27 years ago in the capacity of draftsman in St. Louis, Mo., for the Bell Telephone Co. of Missouri, immediately after receiving his B. S. degree in electrical engineering from Washington University, of that city. He later became affiliated with the long lines department of the Bell System, returning after a time to the Bell Telephone Co. of Missouri.

From 1913 to 1916 Mr. Mier was engaged in other than telephone work, returning to the engineering department of the Southwestern Bell Telephone Co. In 1926 he became general building and equipment engineer and, in 1927, was made engineer for the Oklahoma area.

B. D. HULL, engineer of Texas, for the Southwestern Bell Telephone Co., has been appointed chief engineer of the company, with headquarters in St. Louis, Mo., to succeed W. O. Pennell, who retired May 1. Mr. Hull has had University of Kansas, in 1905. Seven ern Bell Telephone system.

He was employed by the Missouri & Kansas Telephone Co., in Kansas City, as assistant construction engineer immediately upon graduating from the University of Kansas, in 1905. Seven years later he was transferred to St. Louis as engineer; from which position he was promoted to transmission and protection engineer, in 1915, and to that of general transmission and protection engineer, in 1919.

Early in 1926 Mr. Hull was appointed general building and equipment engineer. Later in the year came his appointment as engineer for the Texas area, which position he leaves to become chief engineer for the Southwestern Bell system.

Obituaries of Telephone Men

JOSEPH MORRILL PLAISTER, of Fort Dodge, Iowa, secretary and treasurer of the Fort Dodge Telephone Co. and vice-president of the Iowa Independent Telephone Association, passed away on May 1, after a short illness. He had suffered for some time from a sinus infection and heart trouble which hastened his death.

Born in Dubuque, Iowa, on March 7, 1878, Mr. Plaister was educated in the grade and high schools in that town. Later he took a two-year post graduate course in natural science. He became associated with the Marshall Telephone Co., of Marshalltown, Iowa, in April, 1896, as lineman. Two years later on September 1, he was made manager of the telephone company at Fort Dodge. Since that time, Mr. Plaister for 38 years concentrated on the development of that property, which ranks among the best of the Independent telephone plants of the country.

Mr. Plaister was one of five men to organize the Iowa Independent Telephone Clearing House in 1905, being named its secretary and treasurer. He was always very active in furthering activities of and interest in the Iowa Independent Telephone Association and served as its president in 1910. More recently he served as vice-president and was reelected to office at the recent Iowa convention, although unable to attend on account of illness.

In recent years he conducted the open forum held on the last day of the Iowa conventions in which interest ran high. These forums afford the Iowa telephone men opportunity to earnestly talk over their problems and consider jointly the best method of coping with the trying problems of the recent depression years.

J. M. PLAISTER, of Fort Dodge, Iowa, Secretary–Treasurer of the Fort Dodge Telephone Co., Passed Away on May 1. He Has Been Connected with the Company for the Past 38 Years and Will Long Be Remembered for His Loyal Efforts in Behalf of the Iowa Association, of Which He Was Vice-President at His Death.

Mr. Plaister was a member of the United States Independent Telephone Association and of the Independent Pioneer Telephone Association of the United States. One of the prominent Independent telephone men in Iowa and a real pioneer, Mr. Plaister will be greatly missed at their gatherings.

CALVIN LEE MOORE, of Findlay, Ohio, 58 years old and identified with the telephone industry for 36 years in both Independent and Bell fields, died on Friday evening, March 27. He had been in ill health for 14 years and had given up work two years ago. Mr. Moore was wire chief of the old Findlay Home Telephone Co. for 10 years before it was taken over by the Ohio Bell Telephone Co. and then remained at Findlay in the employ of the Ohio Bell.

Mr. Moore was born October 28, 1878, in Biglick township, Ohio, and had lived his entire life in Hancock county. He is survived by his widow, four daughters, one son, seven grandchildren, and two brothers.

He was a member of the Telephone Pioneers of America. He was very active in lodge work during his lifetime, being a member of the Knights of Pythias No. 85 for 26 years. He was a past chancellor, served on the building association and drill team and was master of finance for a number of years.

Activities of Commissions and Courts

FCC Asks $400,000 More for A. T. & T. Probe

Officials of the Federal Communications Commission disclosed on April 29 that they had requested an additional $400,000 from Congress to continue their many-sided investigation of the American Telephone & Telegraph Co. The request was made, it was learned, at a recent executive session of the House appropriations committee by Commissioner Paul A. Walker, director of the investigation.

The commission received $750,000 last year for the investigation, of which about $500,000 has been spent. Unless additional funds are granted, the inquiry will end July 1. Should the new appropriation be voted, it would continue until February, 1937.

Commission officials said that by the latter date a broad picture of all A. T. & T. Co. operations could be developed and a foundation laid for providing regulatory bodies with any information they might need in rate cases.

▼ ▼

FCC Commissioner Predicts Rate Cuts from Inquiry

Paul A. Walker, chairman of the Telephone Division of the Federal Communications Commission, made a qualified prediction on April 30 that the commission's investigation of the American Telephone & Telegraph Co. might bring slashes in long distance telephone rates.

Declaring that the FCC investigation has brought out that the A. T. & T. has received $180,000,000 of profit on long distance business in excess of a 6 per cent return on its investments, Mr. Walker said that "on the face" of this evidence, downward revision of long distance rates might be expected. He added, however, that the evidence would be "subject to check" by the commission before any action is taken.

A statement that the American Telephone & Telegraph Co. had granted "further toll rate reductions amounting to $3,000,000 annually" since the first of the year was given on April 30 by the A. T. & T. offices in New York City to the Associated Press.

Reviewing evidence on its earnings, the A. T. & T. said they "do not justify further decreases at this time."

"It has always been the policy of the company to reduce toll rates when earnings are sufficient," the statement said. "In the five years between 1926 and 1931, there were four separate cuts which brought the rates from toll calls down $14,500,000 annually."

▼ ▼

Telegram Seizure Case Appealed to Highest Court

Elisha Hanson, attorney for William Randolph Hearst, well-known newspaper publisher, on April 29, appealed to the United States Supreme Court from the decision of the District of Columbia Supreme Court in Mr. Hearst's suit for an injunction restraining the Black senate lobby investigating committee from seizing and making use of telegrams, subpenaed from files of the Western Union Telegraph Co., exchanged between the publisher and his editorial employes, through the cooperation of the Federal Communications Commission.

In denying the injunction, on April 8, the District of Columbia court held the court was without jurisdiction, so far as the Senate committee was concerned and that it was better "to leave us without any remedy than it is for a court to asume jurisdiction to try to coerce or control a committee of the Senate."

▼ ▼

Southern California Bell Ordered to Reduce Rates

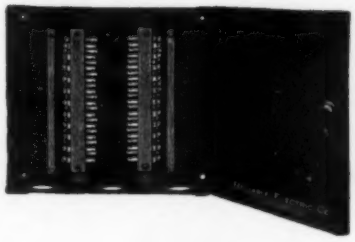
The California Railroad Commission, on April 27, issued an order requiring the Southern California Telephone Co. with headquarters in Los Angeles, to effect reductions in its general rate schedules which will reduce its gross revenues during the current year by approximately $1,250,000. The reductions apply to all classes of telephone service and will become effective June 1.

The opinion of the commission, occupying 65 pages, was written by Commissioner Wm. J. Carr. It orders the rate for one-party measured business service reduced from $5.50 to $5.00 a month, with the basic quota of 85 calls unchanged. Rates for extension telephones are reduced 25 cents a month.

Rates for residence service are likewise reduced 25 cents a month, the total reduction for residential customers being estimated at $545,000. The reductions in rates for service to business users are estimated at $576,000.

This rate case was launched in February, 1935, when complaint was filed by

Reliable



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"Telephony's" Engineering Data

By B. C. Burden

Index, Maintenance Practices.
May 9, 1936.
No. 6-A, Page 16.

Steel Mounting Cases

A neat mounting for the amplifier–rectifier and for the supply unit can be made by having a local tinsmith make up two rectangular galvanized steel boxes without bottoms and with opposite ends turned out to form a mounting flange as shown in Fig. 12. These units permit the concealed subpanel type of wiring which presents a much neater appearance than having the equipment mounted in the open with exposed wiring.

Telephone men, who have had little or no experience with vacuum-tube equipment, will find that the average radio repairman can generally be induced to handle the wiring of the power-supply and the amplifier-rectifier units for a very nominal sum.

Key Equipment and Wiring

The operating keys for transferring the standard and test elements in and out of the circuit and for changing from the variable to the fixed network should be standard "telephone type" keys, such as are used in the listening and ringing circuits of a telephone switchboard. The test jacks may be either radio-type single jacks or a strip of telephone switchboard jacks.

The *standard transmitter and receiver* should be purchased from the telephone manufacturing company whose equipment is standard in a given exchange. Meters can be purchased from the Weston Electrical Instrument Corp. The power-supply and amplifier equipment can be obtained from any radio supply house.

In handling the wiring, it is suggested that all of the wiring shown in Fig. 4 (the transmission test circuit) be neatly cabled together (telephone style) with the exception of the wiring from key No. 3 to the volume indicator circuit. This pair of wires should be enclosed in a shielded cable extending from the keyboard to the top shelf on which the amplifier-rectifier is located.

The 20-cycle wiring to the ringer test circuit *should be cabled separately from the rest of the wiring* in order to prevent ringing induction being introduced into the transmission test circuit. The wiring between the ohmmeter jack and the DC supply ohmmeter-voltmeter switch and the DC milliammeter switch should be cabled separately.

The wiring of the generator test circuit should be cabled separately between the generator jack and the ringer.

"Telephony's" Engineering Data

By B. C. Burden

Index, Maintenance Practices.
May 9, 1936.
No. 6-A, Page 17.

The wiring to the control keys on the sloping keyshelf should be so cabled that the keyshelf can be raised for key adjustment when necessary. By allowing sufficient slack in the keyshelf wiring this can be accomplished without difficulty. The sloping keyshelf can either be hinged, or merely screwed down to the wood cabinet and the screws removed when it is necessary to work on the keys.

Equipment, such as the radio resistors in the generator and ringer test circuits, can be mounted on the back of the vertical panel. The test ringer can be mounted directly below the amplifier, on the inside of the cabinet. The ohmmeter-voltmeter resistances can be attached directly to the back of the contact points of the rotary control switch.

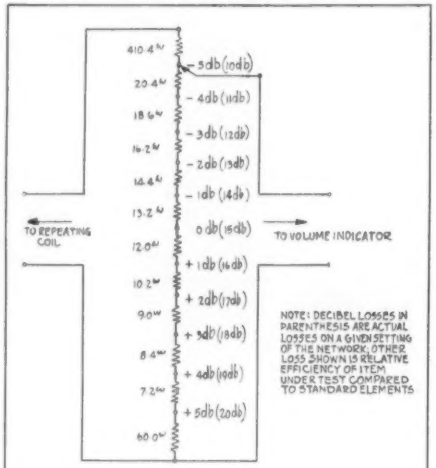

FIG. 10 · VARIABLE NETWORK RESISTOR VALUES

All of the equipment of the power-supply circuit shown in Fig. 6 should be an integral part of the steel chassis as should all of the equipment of the amplifier rectifier circuit shown in Fig. 5. Equipment, such as the local and common battery induction coils in the standard circuits and the repeating coil, is best mounted directly under the sloping keyshelf.

"Telephony's" Engineering Data

By B. C. Burden

Index, Maintenance Practices.
May 9, 1936.
No. 6-A, Page 18.

Variable and Fixed Network Construction

The variable and fixed networks used in introducing losses in the transmission circuit (as shown in Fig. 4) are merely voltage divider arrangements made from non-inductive resistances and arranged so as to have an overall resistance of 600 ohms.

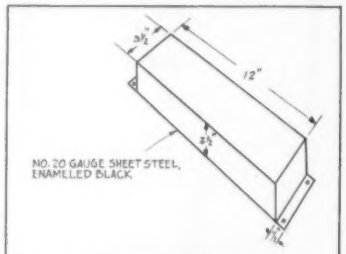

FIG. 12 · STEEL BOXES FOR POWER SUPPLY AND AMPLIFIER-RECTIFIER.

The resistance values of the two parts of the 15-decibel fixed loss network are shown in Fig. 4 The resistance values for the variable network which has a maximum loss of 20 decibels and a minimum loss of 10 decibels is shown in Fig. 10. In order that measurements may be made of various items of telephone equipment, it is necessary that the resistors shown in both the fixed and variable networks have resistances precisely the same as those specified.

These networks can be constructed by purchasing regular resistance wire from some of the radio or telephone supply houses and then winding each individual resistor and adjusting it by use of a Wheatstone bridge to the exact specified value.

Inasmuch as networks of the type shown are not regularly stocked by any of the supply houses and inasmuch as many companies do not have the facilities for accurately winding these resistors, the author has arranged with the Lincoln Engineering Co. of Lincoln, Neb., to supply these networks at a nominal cost to telephone men who may wish to obtain them.

Detailed Operating Instructions

Complete instructions for making transmission and signaling tests on subscribers' instruments and instrument parts are given in the sections which will be published in the next few issues. Some of the miscellaneous uses of the amplifier equipment are also discussed.

the city of Los Angeles that local rates were excessive and discriminatory. The reduction amounts to approximately 7 per cent of the telephone rentals of Los Angeles. This makes a total cut of 20 per cent in rates in Los Angeles since 1929.

▼ ▼

Police Use Radio; Why Not Telephone, Says FCC?

Protests by the Federal Communications Commission against the use of Fort Smith, Ark., police radio station for long distance communication have been revealed by the mayor of that community. It was stated that the FCC had acted on complaint from commercial companies to the effect that the use of police radio stations was cutting into their revenues.

Fort Smith police claim that interstation communications have proved valuable in rounding up bandits and that the FCC action would be taken up at a meeting to be held soon in Tulsa, Okla., of southwestern municipal representatives.

▼ ▼

Illinois Bell Handset Rates Reduced to 15 Cents a Month

The Illinois Commerce Commission entered an order May 1, reducing the extra charge made by the Illinois Bell Telephone Co. for handset telephones from 25 to 15 cents a month. The new rate is effective May 11.

The commision ruled also that the period during which the charge may be made shall be two years instead of three. A year ago the commission set a limit of three years for collection of the extra charge for the modern type of equipment. Prior to that time the charge was continued indefinitely

In December of last year the company eliminated the special charge of $1.25 to $1.50 for changing from the desk stand type of telephone to the handset type, or vice versa.

Of the 864,000 telephones in Chicago, 225,000 are of the handset type. There are 75,000 in use downstate. Extra charges will now be eliminated for subscribers who have had handsets for more than two years.

▼ ▼

A. T. & T. Seeks to Recover State Income Taxes

A suit to recover $144,527.75 in income taxes paid the state government in North Carolina during the years 1927-33, inclusive, has been filed in federal district court in Raleigh by the American Telephone & Telegraph Co. on the grounds that the collection interferes with interstate commerce.

Attorney General A. A. F. Seawell said the action was the first filed on that principle and final decision would set a precedent to be followed in other states. He expects the action to finally reach the United States Supreme Court.

The American company claims that it disposed of its intrastate business several years ago to its subsidiary companies.

▼ ▼

Illinois Commission Chairman Resigns Post

The resignation of Benjamin F. Lindheimer as chairman of the Illinois commerce Commission was accepted by Gov. Horner on May 4. He is succeeded by James M. Slattery, attorney for the Chicago Park board, who was Governor Horner's Cook county manager in the recent primary campaign.

Mr. Lindheimer mailed his resignation on February 11, requesting that it become effective not later than May 1, and stating that it had become necessary for him to devote all his time to his real estate business. In his letter of February 11, Mr. Lindheimer reminded the governor that he had asked to be relieved of his duties on two prior occasions—in November, 1934, and September, 1935.

▼ ▼

Commission Rulings and Schedule of Hearings

Federal Communications Commission Washington, D. C.

April 21: Application filed with the Telephone Division by the Northwestern Bell Telephone Co. and the Tri-State Telephone & Telegraph Co., asking authority for a telephone wire certificate to supplement existing facilities between Spirit Lake, Iowa, and Jackson, Minn.

April 30: Telephone Division granted the Home Telephone & Telegraph Co., of Fort Wayne, Ind., an extension of time for a period of 15 days in which to file Annual Report Form M for the year 1935.

April 30: Telephone Division granted authority to the Northwestern Bell Telephone Co., of Omaha, Neb., and the Tri State Telephone & Telegraph Co., of St.

(*Please turn to page* 32)

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Potential business exists for every telephone company in almost any public place . . . hotel lobbies, drug stores, cigar stores, restaurants or in any one of a dozen other public places common in every town and city in the United States. All that is needed to obtain this extra business is a Gray Telephone Pay Station mounted in full view of the passing public.

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The Manufacturers' Department

Strowger P-A-B-X Serves University of Rome, Italy

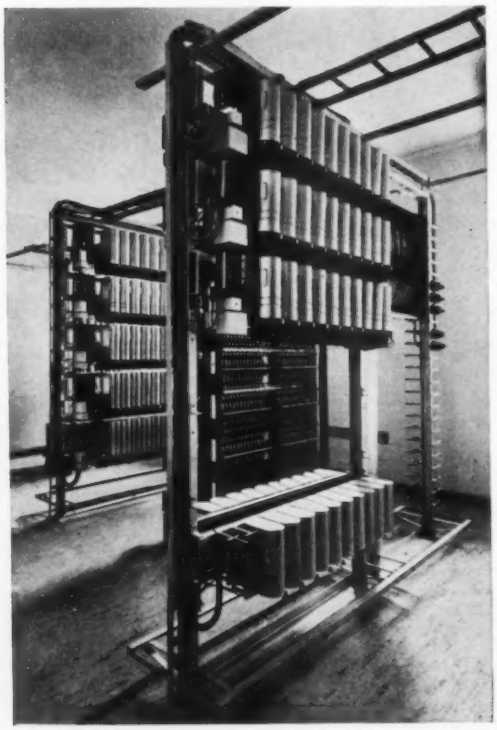
A marvel of modern architectural planning, the University of Rome, Italy, which was inaugurated on October 30 of last year, combines up-to-date features that science and ingenuity provide for the promotion both of student welfare and of efficient and economic operation. The "University City," which lies on the easterly outskirts of Rome proper, covers an area of 40 acres, and consists of 11 major departments.

Included in the university's modern physical equipment is a Strowger private automatic telephone system, which serves to link together the various buildings and departments as well as to provide telephone connections to the Rome public exchange. The telephone installation was engineered and manufactured by Automatic Electric Co., Chicago, and the installation and negotiations were handled by Autelco Mediterranea, S. A., of Rome and Milan, which are distributors in Italy for the products of Automatic Electric Co.

View of the Central Building of Rome University, Italy, Including the Rectory, and the Departments of Law, Letters, Philosophy and Political Science. It is Typical of the Many University Buildings Served by the Automatic Telephone System.

The telephone installation comprises a private automatic branch exchange of the Strowger type, having an initial capacity of 650 telephone numbers, and with 20 trunk lines to the public telephone exchange. Several special features are provided to meet the particular conditions imposed by the service needs of the university.

All interior calls are, of course, handled on a completely automatic basis. For trunk service, the local stations are divided into two groups: Those which are permitted to make or receive calls to or from the Rome central office without restrictions of any kind, and those which are restricted from making any such calls. The unrestricted stations make central office calls by dialing "0," which computes the connection direct to the central office, whereupon the call proceeds in the usual way.



The Strowger Automatic Telephone Exchange Switchboard Which Serves the University City of Rome.

Incoming trunk calls are handled at a one-position attendant's cabinet which is equipped with a full multiple of all of the non-restricted local stations—300 in number. While the operator thus has access to those stations, it is impossible for her to "listen-in" on calls set up by subscribers automatically. If she attempts to listen-in on an incoming trunk call, a warning tone is super-imposed on the line.

While making or receiving calls to the Rome exchange, local stations having non-restricted service may signal the operator at any time by merely turning the dial. They are also provided with facilities for holding a trunk call while making a call over the local automatic switchboard. This is done by providing each non-restricted station with a push button which serves to connect one side of the telephone line to the grounded cable sheath. Pressing the push button serves to hold the trunk call prior to dialing a local connection.

After the local call is completed, the push button serves to hold the trunk call prior to dialing a local connection. After the local call is completed, the push button is pressed again to revert the connection to the trunk. The use of the cable sheath for grounding permits this service to be handled over the usual two-wire line to the main distributing frame.

Other special services installed in connection with the telephone system include secretarial service and loudspeakers, with provision for the addition of code call service in the future. An electric clock installation is also included, consisting of 240 clocks of various sizes on three loops, with two master clocks, installed with the automatic switchboard with automatic switch-over facilities from one to the other.

▼ ▼

Exide Engineers Help Restore Service in Flood Areas

Glowing accounts of the heroic efforts of telephone and other public service employes in maintaining service during the recent catastrophe have been brought back from the flood areas by operating service engineers who had been rushed to the scene by the Electric Storage Battery Co., Philadelphia, Pa., manufacturer of Exide telephone batteries.

Wherever the Exide engineers went they found the telephone and railroad men, blear-eyed from want of sleep, and

with several days' growth of beard on their faces, exerting every effort to keep the service to the public going. In their devotion to duty, these public service men often displayed remarkable resourcefulness. While the solutions to some of their problems might not have been in accordance with strictly orthodox engineering practice, nevertheless their ideas worked.

Many amusing incidents occurred. In a Pennsylvania town a man was sent by the telephone engineer in charge to bring an old-fashioned fire-engine from a museum. The antique fire-apparatus was to be used for pumping water from the cellar of the telephone exchange. A short time later the man returned and inquired where he could get "some harness."

"Harness," exclaimed the chief. "Why harness?"

The man then explained that he had picked up two horses wandering along the street and if he had some harness he could hitch them to the old fire-engine and drive it up in the most approved style—of by-gone days. The harness wasn't found, but half a dozen tired and sleepy men pushed the engine to the exchange and soon put it into operation.

The Exide operating service engineers had been sent to the flood areas for the purpose of aiding public service and industrial users of Exide batteries. In several places the Exide engineers found Exide batteries operating under water from 8 to 20 feet deep. These batteries had kept the telephone service going. In the railroad sections, switches were operated by the Exides in spite of the fact that the batteries had been covered for days with water.

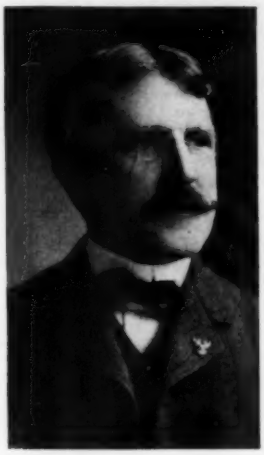
In the Pittsburgh area a railroad crossing signal continued to flash its danger signal although the water was almost up to the lamps and the batteries were many feet under. Although no practical purpose was served by the light at the time, the effect, according to one of the Exide engineers, was rather uncanny.

The Exides suffered no permanent injury from the flood water, the Electric Storage Battery Co. reports. In most cases, all that was necessary was to recharge them after the water had receded. Later, in a few instances of lead-lined tank or open-glass jar types, it was necessary to give equalizing charges and gravity adjustments.

▼ ▼

Walter E. Doolittle, Independent Pioneer, Dies

WALTER E. DOOLITTLE, of Lafayette, Ind., well known in the telephone field and one of the owners of the old Sterling Electric Co., died suddenly on April 11, at the age of 74. He had been stricken with apoplexy and was being rushed to a hospital when he passed away enroute.



W. E. DOOLITTLE, of Lafayette, Ind., Who Recently Passed Away, As He Appeared Several Years Ago.

Mr. Doolittle was born in Lafayette in 1862, and attended the public schools there and Purdue University. After leaving college he carried messages for the Western Union Telegraph Co., later

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becoming an operator. He worked for the Western Union, Baltimore & Ohio R. R., the Atlantic & Pacific, the American Union, and Postal Telegraph companies as operator, wire chief, chief operator and manager at Chicago, Toledo, Evansville, Lafayette and other points.

He was connected for a time with the Duluth & Iron Range Railroad in Minnesota and with the Northern Pacific in Montana. Other interests included the cigar business, livery business and commercial school business.

Mr. Doolittle became manager of the Lafayette Harrison Telephone Co. in 1890. He was manager of the Cushman Telephone Co., at Lafayette, and from 1889 to 1895 he was manager of the old Central Union Telephone Co. exchange at Lafayette.

With Frank B. Cook, Mr. Doolittle incorporated the Sterling Electric Co. at Chicago in 1898, later moving the factory to Lafayette, Ind. He left the telephone field in 1910, becoming president of the Universal Mausoleum Co. in Chicago. In recent years, he was engaged in sales activities in various lines.

Mr. Doolittle was one of the old Independent Pioneers and took an active part in the organization of many companies. His company was one of the early Independent manufacturers and supplied telephones and switchboard equipment for many of the operating companies of that period of great plant and exchange construction.

A. T. & T. Plans to Issue Quarterly Reports

The American Telephone & Telegraph Company, it is understood, will resume issuance of quarterly reports as heretofore, with the report for the period ended June 30, in line with the amended request of the New York Stock Exchange. For the first quarter of 1936 A. T. & T. for the first time reported results for the 12 months ended March 31 instead of those for the first three months of the year.

COMMISSION AND COURT ACTIVITIES

(*Continued from page* 29)

Paul, Minn., to supplement existing facilities between Spirit Lake, Iowa, and Jackson, Minn., by stringing an additional pair of wires between Spirit Lake and Jackson, a distance of 19.4 miles.

Alabama Public Service Commission

April 6: Order issued reducing rates of the Southern Bell Telephone & Telegraph Co. approximately $250,000 annually. The city of Birmingham, which was dissatisfied with its alloted reduction of $130,000, appealed for a larger rate cut.

Arkansas Department of Public Utilities

April 13: Application of J. G. Kerns, asking permission to sell the Kerns Telephone Co. at Centerton to R. B. Kelley for $1,000, taken under advisement by the commission.

California Railroad Commission

April 27: Order issued reducing the rates of the Southern California Telephone Co. in Los Angeles approximately 7 per cent of $1,250,000 annually, effective June 1.

Illinois Commerce Commission

May 1: The commission entered an order, effective May 11, reducing the extra charge made by the Illinois Telephone Co. for a handset type of telephone from 25 cents to 15 cents a month. The commission ruled, further, that the company will be permitted to collect this additional charge for a period of only two years. Under the present regulation, the company has been permitted to collect the extra charge for three years.

May 5: Hearing in Springfield on application of the Central Illinois Telephone Co. for a certificate of convenience and necessity to construct and operate an electric transmission line near Chatham, Sangamon County.

May 7: Hearing in Chicago in the commission's citation, on its own motion, against the Illinois Bell Telephone Co., to show cause why there should not be a reduction in rates for intrastate telephone service rendered by the company in the state of Illinois. Entry of appearance of city of Chicago; villages of Maywood, Olympia Fields, and Richton Park. Protest filed by city of Cairo.

(*Concluded on page* 34)

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Burgess Battery Co., Freeport, Ill.—Burgess Flashlights and Uni-Cel Flashlight Batteries—for dependability and service. The Burgess Twin-Six Telephone Battery—a 3-volt unit designed to replace two No. 6 cells, with longer life, lighter weight, smaller size and a leakproof case. The Burgess Little-Six—replaces the old type No. 6 cell, is smaller and lighter, will not ooze or bulge, has all the electrical capacity of the standard No. 6 cell.

National Carbon Company, 30 E. 42nd St., New York.—"Columbia" Telephone Dry Batteries; "Eveready" Flashlights, Flashlight Batteries and Long Life Dry Cells, "National Pyramid" brushes, carbon, graphite and metal graphite for motors, generators and rotary converters. "Eveready" Prestone anti-freeze; "Eveready" Rustone rust preventive; and "Eveready" Air Cell telephone operators' transmitter batteries.

BATTERIES—STORAGE

The Electric Storage Battery Company, Allegheny Ave. and 19th St., Philadelphia, Pa.—Exide Storage Batteries. Branches: Boston, New York, Rochester, Philadelphia, Pittsburgh, Washington, Atlanta, Cincinnati, Cleveland, Detroit, Chicago, Kansas City, Minneapolis, St. Louis, Denver, San Francisco and Seattle.

Philco (Battery Division) Tioga and C Streets, Philadelphia, Pa.—Philco Flote in Steel-Glass Storage Batteries for P. B. X. and central office operation. Your old batteries will command a liberal allowance toward any Flote in Steel-Glass Cell from 10 A.H. to 1056 A.H. Write now for catalog ...it will tell you the complete story of Flote in Steel-Glass—the finest of telephone batteries.

BATTERY CHARGING EQUIPMENT

General Electric Company, Bridgeport, Conn.—Tungar battery chargers. G-E pole line hardware. Cable filling compound.

North Electric Mfg. Co., Galion, Ohio. — Self-regulating battery chargers.

CABLE—LEAD ENCASED

Kennecott Wire and Cable Company, Subsidiary of Kennecott Copper Corporation (formerly American Electrical Works) Philadelphia, R. I.—Paper telephone cable, switchboard cable, bare copper wire. Chicago Office: 20 N. Wacker Drive; Cincinnati: Traction Bldg.; New York: 100 E. 42nd St.

British Insulated Cables, Ltd., Surrey House, Embankment, W. C. 2, Factory: Prescot, Lancashire, England.—Telephone cable of all sizes and capacities.

General Cable Corporation, 420 Lexington Ave., New York, N. Y.—Paper telephone cables of standardized manufacture for over forty years. Weatherproof and insulated copperweld drop wire.

Eugene F. Phillips Electrical Works, Ltd., Montreal, Can.—For any type of wire or cable used in telephone, telegraph or power work get in touch with "Phillips." Manufacturers of bare and insulated copper wires, rubber insulated wires, enameled wire, magnet wire, telephone cables, power cables, switchboard cables, flexible cords, copper rods, etc.

CABLE RINGS

National Telephone Supply Company, 5100 Superior Ave., Cleveland, Ohio.—National Cable Rings, National Splicing Sleeves, Non-Breakable Messenger Cable Hangers, Marlin and Swisher Cable Hangers and Custom Galvanizers. National cable rings are practical because they are two-way,—they allow the cable to be pulled in either direction. National sleeves make secure the weakest points in the line. If it's a splice—make it a National.

CABLE TERMINALS

Cook Electric Company, 2700 Southport Ave., Chicago, Ill.—Protective Pole Cable Terminals, Unprotected Pole Cable Terminals, central office protection, lighting arresters, sleeves, fuses.

Reliable Electric Company, 3145 Carroll Ave., Chicago, Ill.—Complete line of cable terminals, telephone and switchboard protectors, sleeves, fuses, solderless wire connectors and specialties.

CORDS, CABLE AND WIRE

Lenz Electric Manufacturing Co., 1751 N. Western Ave., Chicago—Established 1904—telephone and switchboard cords for all makes of equipment, braided and lead-covered telephone cable, flame-proof jumper wire, interior telephone wire, switchboard wire.

CORDS AND WIRE

Runzel Cord & Wire Co., 4727-31 Montrose Ave., Chicago—Telephone and Switchboard Cords. Flame-proof Jumper Wire. Switchboard Wire. Interior Telephone Wire. W. L. Runzel, President, has devoted over 40 years to the making of fine telephone cords.

ELAPSED TIME RECORDERS

Calculagraph Company, 50 Church St., New York, N. Y.—Calculagraph is the world's standard elapsed time recorder and gives you toll records printed with elapsed time to the second. Both spring driven and electric motor models are available.

POLES

B. J. Carney & Co., 100 N. 7th St., Minneapolis, Minn.—Western red cedar poles. Pentrex Butt Treated or Plain.

International Creosoting and Construction Company, Galveston, Texas—Creosoted Southern Yellow Pine Poles. Plants: Beaumont and Texarkana, Texas.

Jordan Bros. Lumber Co., Box 84, Norfolk, Va.—Virginia White Cedar Poles. Plain or charred and creo-treated butts.

MacGillis & Gibbs Company, Milwaukee Wis.—Northern White and Western Red Cedar Poles. Plain or butt-treated. Immediate quotations on request.

Michigan Pole & Tie Company, Newberry and Grand Rapids, Mich. — "Poles with Character." Northern White and Western Red Cedar. Strategically located yards, Minneapolis, Minn., and Reed City (Lower Michigan), insure quick deliveries.

H. Sigalet & Company, Ltd., Lumby, B. C., Canada — Western Red Cedar Poles. Plain or Butt treated.

Valentine Clark Corporation, 2516 Doswell Ave., St. Paul, Minn.—Finished Cedar Poles Plain or Butt treated.

SUPPLIES, SWITCHBOARDS AND INSTRUMENTS

American Automatic Electric Sales Company, 1033 West Van Buren Street, Chicago, Ill.—Public Automatic Telephone Systems, Private Automatic Telephone Systems, Central Battery and Magneto Manual Telephone Switchboards, Remote Control Switchboards, Telephone Instruments of all types, Battery Eliminators, Charging Equipment, Signaling and Control Apparatus, Cords, Wires, Cables, Monotype Copperweld Drop Wire, and a complete line of construction materials and supplies.

Automatic Electric Company, 1033 W. Van Buren St., Chicago, Ill.—Public Automatic Dial Systems, Private Automatic Dial Systems, Telephones, relays, signaling and control equipment.

Automatic Electric Company, Ltd., Milton Road, Edge Lane, Liverpool, England.—Automatic Telephone Equipment.

Automatic Electric Sales Company, Ltd., 1027 W. Van Buren St., Chicago, Ill.—Public Automatic Dial Systems, Private Automatic Dial Systems, Manual Telephone Equipment, telephones, storage batteries, wire, cable, poles, etc.

Kellogg Switchboard & Supply Company, Adams & Aberdeen Sts., Chicago, Ill.—Engineers and designers, manufacturers and suppliers of complete equipment for telephone exchanges and communication systems. Manufacturers of "Master-built" Common Battery, Magneto and PBX Switchboards, "Masterphone" Telephone Instruments, and a complete line of telephone supplies, including bronze drop and interior wire.

North Electric Manufacturing Company, Galion, Ohio—Machine switching telephone systems. Automanual and Automatic. "All-Relay" Switching Apparatus (Dialless and Dial Control). Unattended Satellite Systems. Dials (automatic).

Siemens Brothers & Company, Ltd., Woolwich, England—Automatic and Manual Telephone Equipment.

Stromberg-Carlson Telephone Manufacturing Company, 100 Carlson Road, Rochester, N. Y. — Telephone apparatus of all kinds, switchboard cords, cable and general telephone supplies.

TOOLS

Crescent Tool Co., Jamestown, N. Y.—CRESTOLOY Pliers, Curved Needle Nose Pliers, Heavy Diagonal Cutting Pliers, Linemen's Side Cutting Pliers, End Cutting Nippers, Crescent Hack Saws.

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Rates 10 cents per word payable in advance.
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Western Electric No. 122 External Post connection receivers, less cords @	$ 0.65
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Western Elec. No. 20 C. B. Ind. Coils @ 35c ea. No. 46 @	.55 .45
Kellogg No. 79 C. B. Ind. Coils @	
Western Elec. No. 20AL desk stand with W. E. Trans. & Rec. complete with 3 Cond. Cord @	5.25
Chicago Telephone Supply 4-bar 1000-1600 or 2500 ohm ringer compacts @	5.35
Chicago Telo. Supply 5-bar 1000-1600 or 2500 ohm ringer compacts @	6.90
Western Elec. No. 143 Receiver with New shell & Cord @	1.15
Kellogg No. 41 Receiver with New shell & cord @	1.25
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BUCKEYE TELEPHONE AND SUPPLY CO.
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Save time, eliminate trouble. Hot galvanized screw-hooks and malleable castings are separable and indestructible. Standard 2-groove porcelain. Stocked by Telephone Manufacturers.
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POSITIONS WANTED

COMPANIES contemplating buying Strowger Automatic Equipment are offered the services of trustworthy dial system engineer. Address 8526, care of TELEPHONY.

POSITION WANTED—Commercial representative, 7 years with Bell System, university graduate, age 32, capable, aggressive, thoroughly familiar with business office and sales practices. Address 8483, care of TELEPHONY.

POSITION WANTED—Young man, telegraph and telephone inside maintenance and engineering experience. Have excellent record in Bell, foreign and international service. Address 8488, care of TELEPHONY.

EXPERIENCED commercial and traffic man desires position with either Independent telephone company or equipment manufacturer. Am 29 years old and have had plant training. Prominent local and toll office, of which I was traffic chief, enjoyed service record. Best references. Address 8463, care of TELEPHONY.

POSITION WANTED—Traffic or commercial, thoroughly familiar with latest engineering and operating methods. Dial or manual; single or multi-office; force adjustment and management. Address 8468, care of TELEPHONY.

WANTED—Position as chief engineer, construction superintendent or manager. Seven years' engineering with Bell. Sixteen years' engineering, construction and managing with Independents. Would like connection with progressive Independent company who would appreciate competence, aggressiveness and loyalty. Have clear record. Best references. Address 8516, care of TELEPHONY.

WANTED—Position with progressive Independent company appreciating competence and loyalty. Have twelve years Bell, three years Independent, Installation, Maintenance, Common battery, Strowger automatic, Relays, Repeaters, Laboratory testing. Dependable, clear record, best references. Address 8524, % TELEPHONY.

(*Concluded from page 32*)

Consolidated with case 23774, concerning:

"Proposed change in rates for telephone service stated in I. C. C. No. 1 section 1 original sheet No. 5 general local exchange tariff, telephone service I. C. C. No. 2 original sheet No. 1A, schedule of toll rates I. C. C. No. 2 original sheet No. 1A, rates for special contract service and I. C. C. No. 2 section 1 original sheet No. 6 teletypewriter exchange service tariff of the Illinois Bell Telephone Co."

Louisiana Public Service Commission

April 20: Ordered that the commission's order No. 1654 of September 14, 1935, in the commission's proceeding against the Southern Bell Telephone & Telegraph Co., be amended to extend the date for compliance therewith until June 25.

In all other respects the order, concerning the rates, charges and practices of the Southern Bell company for service within the state of Louisiana, to remain the same.

Nebraska State Railway Commission

April 24: In the matter of the application of the Lincoln Telephone & Telegraph Co. for authority to publish and enforce a rate of $.75 per month for rural ten-party residence service; found reasonable and granted, as asked.

April 24: Application filed by Lincoln Telephone & Telegraph Co. for validation of rate of $1.35 for two-party residence service at Bellwood exchange.

April 27: In the matter of the fixing of a depreciation rate for 1936 operations of the Northwestern Bell Telephone Co.; evidence adduced, and the matter taken under advisement.

New York Public Service Commission

May 7: Hearing in New York before Commissioner Brewster in the commission's investigation of the rates, etc., of the New York Telephone Co.

Ohio Public Utilities Commission

April 28: Twelve grounds of error set forth in petition filed by the Lorain Telephone Co., asking a rehearing on the April 17 order of the commission which approved the toll contract between the Lorain company and the Ohio Bell Telephone Co.

April 29: Authority granted the Adamsville Telephone Co. to abandon its exchange at Otsego on the condition that the subscribers in this area be hereafter furnished service at the same rates through the company's Adamsville exchange.

April 29: Under stated conditions, order issued authorizing the Wooster & Orrville Telephone Co., the Kidron Telephone Co. and the Home Telephone Co., of Kilbuck, to sell all of their assets to and the renouncement of their claims against the Ohio Central Telephone Corp.; and the Ohio Central corporation to purchase them for the assignment of its claims against the Middle Western Telephone Co.

April 30: Pleading that its existing tariff does not provide it a reasonable rate of return, the Bluffton Telephone Co. petitioned for authority to increase its rates as follows: Business independent line from $2.00 to $3.50 net; business two-party to $3.00; business rural to $3.50; residence independent line from $1.25 to $2.25; residence four-party, $2.00, and rural residence, $1.75.